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## **Stormwater Management Report and Servicing Brief**

Proposed Multiuse Building  
5580 Manotick Main Street,  
Ottawa, ON

Prepared for:

Dr. Alykhan Abdulla  
Abdulla Real Estate Holdings Inc.

Attention: Nicole Chilton-Jones

LRL File No.: 230464

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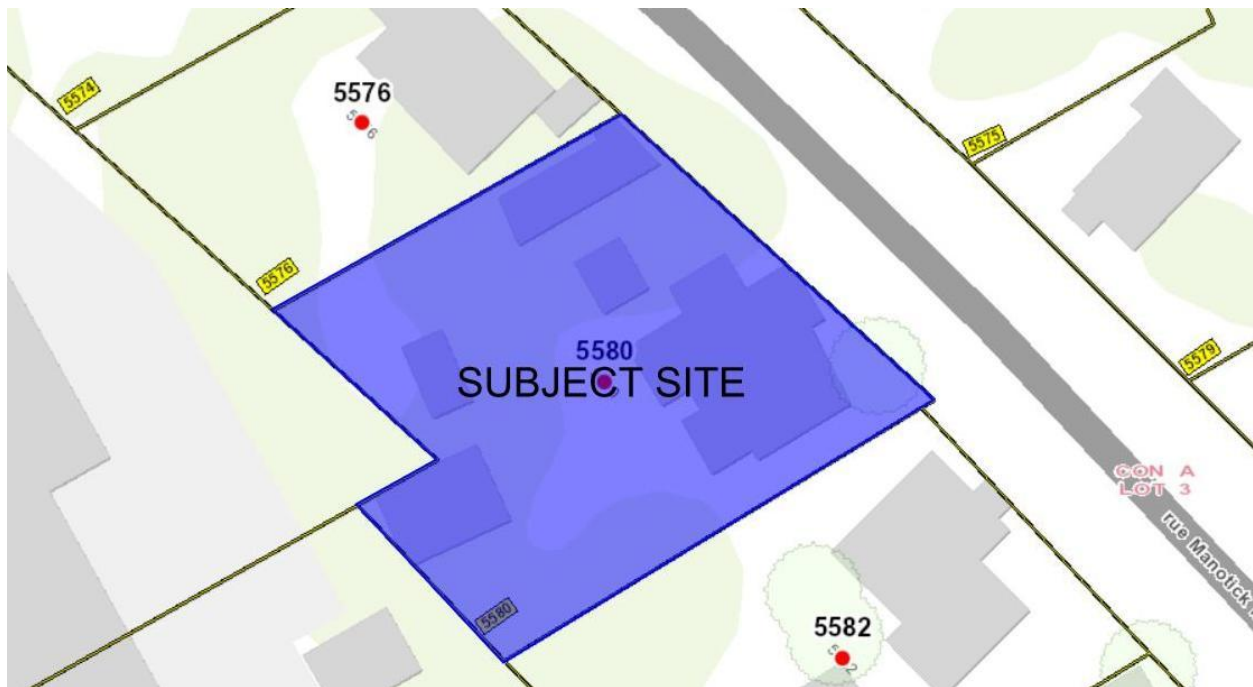
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## 1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by Dr. Alykhan Abdulla - Abdulla Real Estate Holdings Inc. to prepare a Site Serviceability and SWM Report for the proposed development located at 5580 Manotick Main Street, Manotick, Ontario.

The subject property consists of a lot that is legally described as parts of Lot 68 Registered Plan No. 18 and Part of Lot 3 Concession "A" (Broken Front) in the Geographic Township of North Gower, City of Ottawa. The subject property is zoned Village Mixed Use, Subzone 9 (VM9).



**Figure 1: Aerial View of Proposed Development**

The subject site (Figure 1) is trapezoidal shaped and measures approximately 31 m in frontage along Manotick Main Street and the depth varies from approximately 30 m to 38 m. The total site area is approximately **0.10 ha**.

The proposed development will be constructed in a single phase, which includes a two (2) storey commercial/mixed-use building, approximately 300 sq.m. of gross floor area, consisting of office spaces, a pharmacy, photography studio and medical facility. Approximately 15 outdoor surface parking spaces are proposed at the ground level. Refer to **Site Plan** included in **Appendix F** for more details.

This report has been prepared in consideration of the terms and conditions noted above and with the civil drawings prepared for the new development. Should there be any changes in the design features, which may relate to the stormwater and servicing considerations, LRL Associates Ltd. should be advised to review the report recommendations.

## 2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures **0.10 ha** and currently consists of a residential dwelling two (2) frame sheds, one (1) frame sunroom, garden with wooden retaining wall, covering approximately 0.02 ha of the site, which will be demolished. Elevations of existing site ranges between 92.25 m at the northwest corner to 95.75 m at the southeast corner of the subject property.

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa indicate the following existing infrastructure located within the adjacent rights-of-way:

### Manotick Main Street

- 305mm diameter PVC watermain
- 200mm diameter PVC sanitary sewer
- 300mm diameter AC storm sewer

## 3 SCOPE OF WORK

As per applicable guidelines, the scope of work includes the following:

### Stormwater management

- Calculate the allowable stormwater release rate.
- Calculate the anticipated post-development stormwater release rates.
- Demonstrate how the target quantity and quality control objectives will be achieved.

### Water services

- Calculate the expected water supply demand at average and peak conditions.
- Calculate the required fire flow as per the Ontario Building Code (OBC).
- Confirm the adequacy of water supply and pressure during peak flow and fire flow conditions.
- Describe the proposed water distribution network and connection to the existing system.

### Sanitary services

- Describe the existing sanitary sewers available to receive wastewater from the proposed building.
- Calculate peak design flow rates from the proposed development.
- Describe the proposed sanitary sewer system.

## 4 REGULATORY APPROVALS

An MECP Environmental Compliance Approval (ECA) may be required for the proposed stormwater management work. A Permit to Take Water is not anticipated to be required for pumping requirements for sewer installation. The Rideau Valley Conservation Authority will need to be consulted to obtain municipal approval for site development. No other approval requirements from other regulatory agencies are anticipated.



## 5 WATER SUPPLY AND FIRE PROTECTION

### 5.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa BARR water distribution network pressure zone. There is an existing 305 mm watermain within Manotick Main St. There are currently two (2) existing fire hydrants within proximity (<76m) of the subject property.

### 5.2 Water Supply Servicing Design

The subject property is proposed to be serviced via a 25 mm diameter service laterals connected to the existing 305 mm diameter watermain located within Manotick Main St. Refer to the *Servicing Plan C401* in **Appendix E** for servicing layout and connection point.

**Table 1** below summarizes the City of Ottawa Design Guidelines design parameters employed in the preparation of the water demand estimate.

**Table 1: City of Ottawa Design Guidelines Design Parameters**

| Design Parameters                                        | Value                                         |
|----------------------------------------------------------|-----------------------------------------------|
| Commercial Average Daily Demand                          | 2.8 L/m <sup>2</sup> /d                       |
| Minimum Depth of Cover                                   | 2.4 m from top of watermain to finished grade |
| Desired operating pressure range during Maximum Day Flow | 345 kPa (50 psi) and 552 kPa (80 psi)         |
| Minimum allowable pressure during Peak Hour Flow         | 275 kPa (40 psi)                              |
| Minimum allowable pressure during Fire Flow Conditions   | 140 kPa (20 psi)                              |

**Table 2** summarizes the proposed development estimated water demand calculated based on the City of Ottawa Design Guidelines for Water Distribution (Table 4.2).

**Table 2: Estimated Domestic Water Demand**

| Property type | Unit Rate (L/ha/d) | Area (ha) | Demand (L/d) |
|---------------|--------------------|-----------|--------------|
| Commercial    | 28000              | 0.1       | 2800         |

The following peak factors were used in calculations as per Table 4.2

- Maximum Day Factor = 1.5
- Peak Hour Factor = 1.8

Using the above-mentioned factors and average demand calculated in **Table 2**, the anticipated total demands are:

- Average day demand = **0.03 L/s**
- Maximum day demand = **0.05 L/s**



- Peak hour demand = **0.09 L/s**

Refer to **Appendix B** for water demand calculations.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand. **Table 3** below summarizes boundary conditions for the proposed development.

**Table 3: Summary of Boundary Conditions**

| Demand Scenario     | Existing Condition                                 | Future SUC                                         |
|---------------------|----------------------------------------------------|----------------------------------------------------|
|                     | Connection @<br>Manotick Main St*<br>(m H2O / psi) | Connection @<br>Manotick Main St*<br>(m H2O / psi) |
| Maximum HGL         | 156.2/92.9                                         | 146.6/79.3                                         |
| Peak Hour           | 142.0/72.8                                         | 142.9/74.0                                         |
| Max Day + Fire Flow | 142.0/72.8                                         | 142.8/73.8                                         |

\*Approximate Ground Elevation = 90.8m

As indicated in **Table 3**, pressures in all scenarios meet the required pressure range stated in **Table 1**, with the exception of the existing condition maximum pressure of 92.9 psi, which exceeds the allowable limit of 80 psi. Therefore, a pressure reducing valve is required to be installed in the proposed building, downstream of the water meter. Refer to **Appendix A** for Boundary Conditions correspondence.

The estimated fire flow for the proposed building was calculated in accordance with Ontario Building Code (OBC). The estimated fire flow demand was calculated to be **2700 L/min**, see **Appendix B** for calculation details.

There are two (2) existing fire hydrants near the proposed buildings that are available to provide the required fire flow. **Table 4** below summarizes the aggregate fire flow of the contributing fire hydrants in proximity to the proposed development based on Table 18.5.4.3 of *ISTB-2018-02*.

**Table 4: Fire Protection Summary**

| Building                   | Fire Flow Demand (L/min) | Fire Hydrants(s) within 75m | Available Combined Fire Flow (L/min) |
|----------------------------|--------------------------|-----------------------------|--------------------------------------|
| Proposed Mixeduse building | 2700                     | 2                           | (2x 5678)<br>= 11356                 |

The total available fire flow from contributing hydrants is **11356 L/min**, which is sufficient to meet the required fire flow for the proposed development.

## 6 SANITARY SERVICE

### 6.1 Existing Sanitary Sewer Services

There is an existing 200 mm diameter sanitary sewer within Manotick Main Street.

### 6.2 Sanitary Sewer Servicing Design

The proposed development will be serviced via a 150 mm diameter sanitary service to be connected to the existing 200 mm diameter sanitary sewer within Manotick Main Street. Refer to the *Servicing Plan C401 (Appendix E)*, for the proposed sanitary servicing layout.

The parameters used to calculate the anticipated sanitary flows are:

- Commercial average flow = 28000 L/ha/day
- Commercial peaking factor = 1.5
- Total infiltration rate = 0.33 L/s/ha.

Based on these parameters and the total site area of 0.10 ha, the total anticipated wet wastewater flow was estimated **0.08 L/s**. Refer to **Appendix C** for the sanitary sewer design sheet.

## 7 STORMWATER MANAGEMENT

### 7.1 Existing Stormwater Infrastructure

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer systems. As such, approvals for the proposed development within this area are under the approval authority of the City of Ottawa.

In pre-development conditions, drainage from the subject site (depicted by existing catchment ECA-01) flows uncontrolled overland towards southwest low-lying area, with a small portion of the site draining towards Manotick Main St rights-of-way (ROW). Refer to the *Pre-development Watershed Plan C701* included in **Appendix E** for pre-development drainage characteristics. There is currently an existing 300 mm diameter concrete storm sewer within the ROW of Manotick Main Street, approximately 10 m away from the north corner the subject site.

### 7.2 Design Criteria

The stormwater management criteria for this development are based on the pre-consultation with City of Ottawa officials, the City of Ottawa Sewer Design Guidelines (2012) as well as the Ministry of the Environment's Stormwater Management Planning and Design Manual, 2003.

#### 7.2.1 Water Quality

The subject property lies within the Rideau River watershed area and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). It was determined that an enhanced level of treatment (80% TSS Removal) is required for the treatment of stormwater runoff from the proposed development.



### 7.2.2 Water Quantity

Based on the City requirements, the following stormwater management quantity control requirements were identified for the subject site:

- 100-yr post-development peak flow must match the 2-yr pre-development peak flow rate.
- Attenuate all storms up to and including the City of Ottawa 100-yr storm event on site.

Utilizing the above parameters, the total allowable storm release rate was calculated to be **9.06 L/s**. Refer to **Appendix D** for calculations.

### 7.3 Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the site and to quantify the detention storage required for quantity control. Refer to the design sheets included in **Appendix D** for storage calculations.

### 7.4 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity control for this development will be accomplished using controlled catchment area with an Inlet Control Device (ICD) to be installed at the outlet of STM MH02. Storage required, as a result of quantity control measure, will be accommodated overground in the parking lot surface. Briefly, in post-development condition, the site will have five (5) catchments as outlined below.

- Catchment CA-01 consisting of the building envelope and parking lot will be captured by a catchbasin (CBMH01) and controlled by the ICD installed at downstream manhole (STM MH02).
- Catchment CA-02 consisting of mostly grass area will flow uncontrolled towards Manotick Main St ROW.
- Catchment CA-03 & CA-04 consisting of grass area will flow uncontrolled off the site towards south/east, as it did in pre-development conditions.
- Catchment CA-05 consisting of grass area will flow uncontrolled partially towards Manotick Main St ROW, and off the site towards west as it did in pre-development conditions.

**Table 5** below summarizes post-development drainage areas and runoff coefficients. Refer to **Appendix D** for detailed calculations.



**Table 5: Drainage Areas and Runoff Coefficient**

| Catchment            | Area (ha)    | Weighted Runoff Coefficient (C) | 100 Year Weighted Runoff Coefficient (25% increase) |
|----------------------|--------------|---------------------------------|-----------------------------------------------------|
| CA-01 (controlled)   | 0.082        | 0.90                            | 1.00                                                |
| CA-02 (uncontrolled) | 0.006        | 0.31                            | 0.38                                                |
| CA-03 (uncontrolled) | 0.004        | 0.20                            | 0.25                                                |
| CA-04 (uncontrolled) | 0.006        | 0.20                            | 0.25                                                |
| CA-05 (uncontrolled) | 0.004        | 0.20                            | 0.25                                                |
| <b>Total</b>         | <b>0.102</b> | <b>0.77</b>                     | <b>0.96</b>                                         |

The subject site peak runoff is controlled at STM MH02 using an ICD Hydrovex 75VHV-1(or approved equivalent). As such the total runoff from the subject site does not exceed the allowable release rate established in Section 7.2.2. A proposed 250 mm diameter free-flowing storm sewer will discharge controlled flows to the proposed Oil/Grit Separator (OGS) which will outlet to the proposed STM MH03 and eventually to the proposed 250 mm diameter storm sewer along Manotick Main Street. The proposed servicing layout and connection points are shown on drawing C401 in **Appendix E**, and detailed calculations can be found in **Appendix D**.

**Table 6** below summarizes the release rates and storage volumes required to meet the allowable release rate of **9.06 L/s** for a 100-year flow.

**Table 6: Stormwater Release Rate & Storage Volume Summary (100 Year)**

| Catchments                    | Area (ha)    | 100-year Release Rate (L/s) | 100-Year Required Storage (m <sup>3</sup> ) | Available Surface Storage (m <sup>3</sup> ) |
|-------------------------------|--------------|-----------------------------|---------------------------------------------|---------------------------------------------|
| CA-01 (Controlled)            | 0.082        | 6.23                        | 26.44                                       | 31.87                                       |
| CA-02 to CA-05 (Uncontrolled) | 0.020        | 2.84                        | N/A                                         | N/A                                         |
| <b>Total</b>                  | <b>0.102</b> | <b>9.06</b>                 | <b>26.44</b>                                | <b>31.87</b>                                |

To attenuate flows to the allowable release rate of **9.06 L/s**, it is calculated that a total of **26.44 m<sup>3</sup>** of storage will be required for the 100-year storm event. The required storage is proposed to be met via surface ponding in the paved parking lot which will provide **31.87 m<sup>3</sup>** of available storage. The 100-yr maximum ponding extent and ponding depth can be found on *Stormwater Management Plan C601* in **Appendix E**.



To meet stormwater quality control objective, an Oil/Grit Separator (SDD3-1200 or approved equivalent) is proposed located downstream of STM MH02 which will provide an enhanced level of treatment i.e. > 80% TSS removal. Refer to *Servicing Plan C401* for its location and **Appendix D** for sizing report and specifications.

## 8 EROSION AND SEDIMENT CONTROL

During construction, erosion and sediment controls will be provided primarily via a sediment control fence to be erected along the perimeter of the site where runoff has the potential of leaving the site. Inlet sediment control devices are also to be provided in any catch basin and/or manholes in and around the site that may be impacted by the site construction. Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification OPSS.MUNI 805. Refer to the drawing C101 for erosion and sediment control details.

## 9 CONCLUSION

This Stormwater Management and Servicing Report for the development proposed at 5580 Manotick Main Street presents the rationale and details for the servicing requirements for the subject property. In accordance with the report objectives, the servicing requirements for the development are summarized below:

### Water Service

- The peak hour domestic water demand of the proposed site is **0.09 L/s**.
- The required fire flow was calculated **2700 L/min**, using the OBC method.
- There are two existing fire hydrants available in proximity to service the proposed development.
- The proposed development will be serviced with a 25 mm diameter water service to be connected to the existing 305 mm diameter watermain within Manotick Main Street.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to service the proposed site.

### Sanitary Service

- The total anticipated wastewater design flow from the proposed development is **0.08 L/s**.
- The proposed development will discharge to the existing 200 mm dia. sanitary sewer within Manotick Main Street via a proposed 150 mm diameter sanitary service lateral.

### Stormwater Management

- An OGS (SDD3-1200 or approved equivalent) is proposed to meet the required water quality control objective of **80% TSS removal**.
- The stormwater release rates from the proposed development will meet calculated allowable release rate of **9.06 L/s**.



- Stormwater quantity control objectives will be met using an inlet control device and on-site stormwater storage in the parking lot.

## 10 REPORT CONDITIONS AND LIMITATIONS

The report conclusions are applicable only to this specific project described in the preceding pages. Any changes, modifications or additions will require a subsequent review by LRL Associates Ltd. to ensure the compatibility with the recommendations contained in this document.

If you have any questions or comments, please contact the undersigned.

Prepared by:

**LRL Associates Ltd.**



Maxime Longtin  
*Civil Engineering Technologist*



Mohan Basnet, P.Eng.  
*Civil Engineer*



## **APPENDIX A**

### **Pre-consultation**

December 4, 2023

File No.: PC2023-0177

Nicole Chilton-Jones  
Ignite Architecture Inc.  
Via email: nicole@ignitearchitecture.ca

**Subject: Pre-Consultation: Meeting Feedback  
Proposed Site Plan Control Application – 5580 Manotick Main St**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on November 29, 2023.

A new two storey commercial/mixed-use building, approximately 300 sq.m. of gross floor area, is proposed with office spaces, a pharmacy, photography studio and medical facility. A ramp down to 15 parking spaces at the rear of the building and under a cantilever of the upper storey is proposed.

**Pre-Consultation Preliminary Assessment**

|                            |                            |                            |                                       |                            |
|----------------------------|----------------------------|----------------------------|---------------------------------------|----------------------------|
| 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input checked="" type="checkbox"/> | 5 <input type="checkbox"/> |
|----------------------------|----------------------------|----------------------------|---------------------------------------|----------------------------|

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

**Next Steps**

- A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to [planningcirculations@ottawa.ca](mailto:planningcirculations@ottawa.ca).
- In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
- Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to repeat the Phase 2 pre-consultation process.

## **Supporting Information and Material Requirements**

- The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.
  - The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on [Ottawa.ca](http://Ottawa.ca). These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

## **Consultation with Technical Agencies**

- You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

## **Planning**

Comments:

### **Official Plan & Secondary Plan**

1. The subject property is designation Village Core in the Official Plan. Manotick Main Street has been identified as a Scenic Entry Route on Schedule C13 of the Official Plan.
2. The subject property is also designated Village Core in the Village of Manotick Secondary Plan and a part of the Main Street Character Area. The Main Street character area permits a variety of commercial uses such as retail, office and personal service uses and institutional uses.
3. The proposed development requires a Site Plan Control application as it is located within the Design Priority Area as defined on Schedule C7B of the Official Plan and the associated parking area exceeds nine parking spaces, as outlined in the [Site Plan Control By-law](#).
4. The Village of Manotick Secondary Plan identifies a proposed sidewalk along the frontage of the subject property.
5. The Secondary Plan states new buildings will be designed to be pedestrian oriented, which includes providing entrances and clear windows that face the street. Development in the Village Core will contribute to a lively pedestrian-oriented environment.
6. In accordance with Schedule C16 of the Official Plan, Manotick Main Street has a protected right of way of 23 metres.

## Zoning By-law

7. The subject property is zoned Village Mixed Use, Subzone 9 (VM9). The permitted uses include artist studio, medical facility, office, personal service business, and retail store.
8. In accordance with Section 3 (5) of the Zoning By-law, development is permitted on a village lot existing as of June 25, 2008 and which is legally non-complying with respect to lot width or lot area provided:
  - a. The proposed use is a use permitted in the zone in which the lot is located,
  - b. The proposed use does not contravene any other provisions of the Zoning By-law, and;
  - c. The lot is zoned V1, V2, V3 or VM (which includes the subzone VM9).

If the proposed development does not comply with the provisions of Section 3 (5) of the Zoning By-law, a minor variance application to the Committee of Adjustment, or a Zoning By-law Amendment application may be required to address the undersized minimum lot area and any other deficiencies that may arise. A more detailed Site Plan is required in order to confirm if all other provisions of the Zoning By-law have been met.

9. Please ensure the Site Plan meets the requirements of the [Terms of Reference](#). Outlined below are some of the items currently missing from the Site Plan but does not include a comprehensive list:
  - a. Please clearly identify the provided lot frontage.
  - b. Please identify the setbacks front all lot lines.
  - c. The Site Plan should list the zoning provisions in a chart which clearly identifies the required and provided information for each provision.
10. The parking requirements must be shown on the Site Plan. The parking requirements are as follows for each use:
  - a. Artist studio requires 3.4 spaces per 100 m<sup>2</sup> of gross leasable floor area, with a minimum of 5 spaces.
  - b. Medical facility requires 4 spaces per 100 m<sup>2</sup> of gross leasable floor area.
  - c. Personal service business requires 3.4 spaces per 100 m<sup>2</sup> of gross leasable floor area.
  - d. Retail store requires 3.4 spaces per 100 m<sup>2</sup> of gross leasable floor area.

- e. Office space requires 2.4 spaces per 100 m<sup>2</sup> of gross leasable floor area.
  - f. Minimum parking space requirements are to be rounded to the nearest whole number.
  - g. Use of the Shared Parking Provisions within Section 104 of the Zoning By-law could be explored.
11. Bicycle parking spaces are required at a rate of:
- d. 1 space per 250 m<sup>2</sup> of gross floor area for an office or retail store
  - e. 1 space per 500 m<sup>2</sup> of gross floor area for personal service business
  - f. 1 space per 1000 m<sup>2</sup> of gross floor area for medical facility
  - g. 1 space per 1500 m<sup>2</sup> of gross floor area for all other non-residential uses
12. The parking lot must meet the landscaping provisions of Section 110 of the Zoning By-law, which requires 15% of the parking lot to include landscaped area. The Site Plan currently submitted does not include any landscaped areas.
13. Please review the drive aisle, driveway widths and driveway gradient in accordance with Section 107 & 108 of the Zoning By-law.

#### Discussion

14. The subject property is within a Design Priority Area. Design review will focus on achieving streetscape improvements and high design standards for both public and private sector development projects.
15. The property is within the Village of Manotick Groundwater Contaminant Plume. A notice on title will be required and should be considered in the design of the site.
16. Questions regarding setbacks from the hydro lines can be directed to Hydro One Networks at [Ottawa.circulations@hydroone.com](mailto:Ottawa.circulations@hydroone.com)

Feel free to contact Erica Ogden-Fedak ([Erica.Ogden-Fedaak@ottawa.ca](mailto:Erica.Ogden-Fedaak@ottawa.ca)), Planner II, for follow-up questions.

#### Urban Design

Comments:

17. Design Brief required – please see attached TOR.
18. Design Priority Area – UDRP review may be required subject to the plans provided as part of your next pre-consultation review.

19. Please explore the potential to reorient the building so that it has a greater presence along Manotick Main Street.
20. Please ensure that the ground floor has transparent windows and active uses facing out onto Manotick Main Street.
21. Please confirm that the public realm will be bolstered with an accessible sidewalk and street trees.
22. Please consider context when selecting materials for the building, especially facing out to Manotick Main Street.
23. Please bolster sustainability where possible – light material choices for roof, green roof if possible, triple pane windows, permeable paving surfaces, etc.

Feel free to contact Nader Kadri ([nader.kadri@ottawa.ca](mailto:nader.kadri@ottawa.ca)), Urban Designer, for follow-up questions.

## **Engineering**

### **24. General:**

- a. For a complete description of the Terms of Reference and application submission requirements, please reference the City's web site : [Planning application submission information and materials | City of Ottawa](#) .
- b. All drawings and reports submitted for engineering review must be stamped and dated by a Professional Civil Engineer, Civil Engineering Technologist registered in the Province of Ontario, or Ontario Land Surveyor.
- c. The ROW requirement for this section of Manotick Main is a width of 23 metres. As part of a complete application, a survey of the property is required that shows the distance from the centreline of Manotick Main to the property. If this distance is less than 11.5 metres, the required area must be dedicated to the City for future road widening projects.
- d. The City will require an Exterior Lighting Certificate certified by a qualified engineer.
- e. Applicant is advised to review the following:
  - i. Village of Manotick Secondary Plan
  - ii. Manotick BIA (Business Improvement Area)
  - iii. Official Plan (City of Ottawa) Annex 8B – Subwatershed Studies and Environmental Plans

iv. Mud Creek Subwatershed Study

- f. The sloped driveway and retaining walls appear to extend into the widened City of Ottawa right-of-way. These features must stop at the property line.

25. Environmental Site Assessment (Phase 1 & 2 ESA)

- a. A Phase One ESA is required for the review of this site.
- b. Environmental Site Assessments (ESA's) are required to ensure that development only takes place on sites where the environmental conditions are suitable for the proposed use in accordance with provincial legislation and regulations.
- c. The Phase 1 ESA report will determine whether a Phase 2 ESA is required.
- d. Please note that this site may be within the old subsurface Manotick drycleaning fluid plume, an area known as an Environmental Risk Management Area (ERMA). This contaminant should be discussed, and any risks outlined in the report. For more information, please contact the City's Environmental Remediation Unit (ERU) at [ERU-UAE@ottawa.ca](mailto:ERU-UAE@ottawa.ca).
- e. Note that ESA reports expire after eighteen months.
- f. REF: Environmental Site Assessment (Phase 1 & Phase 2), City of Ottawa, Terms of Reference.

26. Geotechnical Study

- a. A Geotechnical report is required to support the design and construction of this project.
- b. The Geotechnical report should provide sufficient soils and engineering information to confirm that the site(s) are suitable or can be made suitable for development. The geotechnical report shall adequately discuss the fill requirements, grade raise restrictions, and other limitations and earthworks required for development within a floodplain or adjacent to a watercourse, and wetland.
- c. The report should clearly state whether sensitive marine clays or organic soils are present on this site, or not. The report might include: Atterberg limits, consolidation testing, shear strength testing, grade raise restrictions, or a sieve analysis as required.
- d. The report should clearly state whether soil liquefaction is a risk on this site, or not.

## 27. Grading and Drainage Plan

- a. A Grading Plan is required to support the design and construction of this project.
- b. A Grading and Drainage Plan establishes the grading relationships between connecting (or abutting) properties. It serves as the basis for controlling surface runoff. A grading plan directs water from the building. The focus is on the landscaping around the house and soil elevation. The goal is to provide proper yard grading for drainage away from buildings.
- c. Grading Plans provided to the City of Ottawa should include:
  - i. All elevations must be referenced to a geodetic reference point.
  - ii. All measurements must be in metric units, imperial measure may be provided as a secondary measurement.
  - iii. Please indicate the Site Benchmark and the external reference that provides the horizontal and vertical datum of the reference used to set this benchmark.
  - iv. Provide top of curb (TC) and bottom of curb (BC) elevations.
  - v. Please maintain a minimum 150 mm difference between the proposed finished floor elevation and the finished grade at the structure. Maintain positive surface drainage away from the foundation wall.
  - vi. A 0.3m freeboard should be provided between the 100-year water elevation and the finished floor elevation.
  - vii. Please include the Pavement Design provided in the Geotechnical Report. Typically, this should include a low-density and a heavy-duty pavement design.
  - viii. Grading in grassed areas must be between 2% to 7%. Grades in excess of 7% will require a maximum 3:1 terracing. Terracing will not be permitted in Amenity areas or Access Easements.
  - ix. Grading on driveways shall not exceed 6%.

## 28. Site Servicing Study

- a. A Site Servicing Study is required to support the design and construction of this project.
- b. Applications for new development are required to demonstrate, to the City's satisfaction, that adequate services are available and can be allocated to support the proposal.

c. There is no storm sewer in front of the subject property.

d. Assessment of Adequacy of Public Services Review

- i. A Site Servicing or Assessment of Adequacy of Public Services Report is required in support of the design and construction of this project.
- ii. Applications for new development are required to demonstrate, to the City's satisfaction, that adequate services will be designed and constructed to support the proposal.
- iii. A completed Water Data Card will be required for the accurate sizing and costing of the proposed water meter at detailed design.
- iv. REF: Site Servicing Study, Terms of Reference.

e. Erosion and Sediment Control Plan/Brief

- i. An Erosion and Sediment Control Plan is required in support of the design and construction of this project.

f. Stormwater Management Report

- i. A Stormwater Management report is required in support of the design and construction of this project.
- ii. Stormwater design must adhere to the City's 'Ottawa Design Guidelines - Sewer', Second Edition, document no. SDG002, October 2012, City of Ottawa, including technical bulletins: ISDTB-2014-01, PIEDTB-2016-01, ISTB 2018-01, ISTB-2018-04, ISTB-2019-02.
- iii. The report may require an evaluation of the downstream watercourse or sewers, determination of stormwater management criteria, and/or identify any in-stream works needed to mitigate the impacts of the development. It may also require coordination with planning of services for adjacent development areas and amendment of an approved Master Servicing Study for those areas.
- iv. The quantity criteria for the development are that the 100-yr post development peak flow rate must match the 2-year pre-development peak flow rate.
- v. The stormwater management quality criteria for this site are 80% TSS removal.
- vi. A calculated time of concentration (Cannot be less than 10 minutes) is required.

- vii. Runoff volumes must be calculated using the 'C' values found in Ottawa Design Guidelines (Sewer), Section 5.4.5.2.1 page 5.26. There are no standard or maximum 'C' values in the Rural area.
- viii. Stormwater must outlet to a legal and sufficient outlet.
- ix. A 0.3m freeboard should be provided between the 100-year high-water elevation and the finished floor elevation.
- x. Stormwater or Drainage plans must include the ponding depth, volume, and ponding extent for 2-year and 100-year storm events.
- xi. Please provide pre- & post- development drainage plans clearly identifying the sub-drainage zones, their areas, and 'C' values.
- xii. The rear yard area is much lower than the street side. How will rainwater runoff in the rear yard (a low area) be redirected to the street?
- xiii. Additional stormwater requirements may be found in the Mud Creek Subwatershed Study (October 2015).

g. Sewer connections to be made above the spring-line of the sewermain as per:

- i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.
- ii. Std Dwg S11 (For rigid main sewers) – lateral must be less than 50% the diameter of the sewermain,
- iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,
- iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.
- v. No submerged outlet connections.

h. Water Boundary Conditions Review

- i. In order to check the capacity of City water supply, the consultant must supply an estimate of water demand of the proposed structure.
- ii. Requests for Water Boundary conditions must include:
  - Location of service (plan or drawing).

- Type of development and the amount of fire flow required (as per FUS).
- Average daily demand: \_\_\_\_ L/s.
- Maximum daily demand: \_\_\_\_ L/s.
- Maximum hourly daily demand: \_\_\_\_ L/s.

## 29. Fire Services

- a. The applicant should contact Allan Evans ([Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)) with Ottawa Fire Services to determine the water supply requirements for firefighting at the site.
- b. Fire truck routes should be shown on civil plans. Fire Routes now require designation with By-law through the Site Plan application process by contacting [fireroutes@ottawa.ca](mailto:fireroutes@ottawa.ca).

## 30. Slope Stability Study

- a. A Slope Stability Review is required for the review and approval of this application.
- b. Retaining walls over 1.0 metres in height requires a drawing and report stamped, signed by an engineer licensed in the Province of Ontario.  
REF: Slope Stability Guidelines for Development Applications (City of Ottawa, Jun 2020).  
REF: Slope Stability Study, Terms of Reference.

## 31. Ministry of the Environment, Conservation and Parks Review

- a. An ECA application and approval may be required for Site Plan approval of the proposed development.
- b. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation.
- c. It is the applicant's responsibility to confirm which of the several types of ECA approvals may be required for this application. If a Direct Submission is by the nature of the application required by the MECP, the applicant can request a Transfer of Review in its place by contacting Charles Warnock, [Charles.warnock@ottawa.ca](mailto:Charles.warnock@ottawa.ca).
- d. Stormwater management on commercial sites typically require ECA approval from the MECP.
- e. For any water taking of volumes greater than 50,000 L/day, either an Environmental Activity and Sector Registration (EASR) or a Permit To Take



Water (PTTW) is required from the MECP, dependent on dewatering requirements.

f. MECP/City of Ottawa ECA Contact info:

- Charlie Primeau at (613) 521-3450, ext. 251 or [Charlie.Primeau@ontario.ca](mailto:Charlie.Primeau@ontario.ca)
- Emily Diamond at (613) 521-3450, ext. 238 or [Emily.Diamond@ontario.ca](mailto:Emily.Diamond@ontario.ca)
- Charles Warnock at 613-580-2424 ext. 27809 or [Charles.warnock@ottawa.ca](mailto:Charles.warnock@ottawa.ca) .

29. Site Lighting Certificate

- a. The City will require an Exterior Lighting Certificate certified by a qualified engineer before issuing Site Plan Approval.
- b. Any exterior lighting proposed for the site is required by the City of Ottawa to be certified by a qualified engineer conforming the design complies with the following criteria:
  - i. It must be designed using only fixtures that meet the criteria for Full-Cut-Off (Sharp cut-off) Classification, as recognized by the illuminating Engineering Society of North America (IESNA or IES).
  - ii. It must result in minimal light spillage onto adjacent properties. As a guide, 0.5 foot-candle is normally the maximum allowable spillage.
  - iii. The location of the fixtures, fixture types (make, model, and part number) and the mounting heights must be provided.

Feel free to contact Brian Morgan ([Brian.Morgan@ottawa.ca](mailto:Brian.Morgan@ottawa.ca)), Infrastructure Project Manager, for follow-up engineering questions.

**Noise**

Comments:

32. Noise Impact Studies required for the following:

- a. Stationary, if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses.

33. Noise Control Guidelines, it is best practice to address noise for the following types of spaces: general offices, reception areas, individual or semi-private office, and retail stores. It is therefore recommended to review the roadway noise for the site due to the proximity to Manotick Main and to ensure mitigation is provided (as required) so that workers and visitors are not adversely affected.

Feel free to contact Rochelle Fortier ([Rochelle.Fortier@ottawa.ca](mailto:Rochelle.Fortier@ottawa.ca)), Transportation Project Manager, for follow-up questions.

## **Transportation**

### Comments:

34. A TIA is not required.
35. A driveway crossing the roadway at 90 degrees is preferred. As the driveway is angled to the roadway, the driveway is sloped, and there is street parking adjacent to the site, a safety review of the access is required. Ensure sightlines can be achieved when cars are parked on-street.
36. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.
  - a. ROW must be unincumbered and conveyed at no cost to the City. Note that conveyance of the ROW will be required prior to registration of the SP agreement. Additional information on the conveyance process can be provided upon request.
  - b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.
37. Clear throat length requirements for offices (GFA less than 5,000m<sup>2</sup>) on an arterial is 15m. Ensure this length is provided and dimension it on the Site Plan. The clear throat length is measured from the ends of the driveway curb return radii at the roadway and the point of first conflict on-site. Note the minimum throat length provided must be maintained with the future ROW protection (as applicable).
38. The Village of Manotick Secondary Plan identifies a proposed sidewalk along the frontage of the subject property.
39. As the proposed site is for general public use, AODA legislation applies.
  - a. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).
  - b. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements. <https://ottawa.ca/en/city-hall/creating-equal-inclusive-and-diverse-city/accessibility-services/accessibility-design-standards-features#accessibility-design-standards>

40. On site plan:

- a. Ensure site access meets the City's Private Approach Bylaw (<https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/laws-z/private-approach-law-no-2003-447>).
- b. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.
- c. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
- d. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).
- e. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)
- f. Show slope of driveway on site plan.
- g. Parking stalls at the end of dead-end parking aisles require adequate turning around space
- h. Grey out any area that will not be impacted by this application.

Feel free to contact Rochelle Fortier ([Rochelle.Fortier@ottawa.ca](mailto:Rochelle.Fortier@ottawa.ca)), Transportation Project Manager, for follow-up questions.

### **Environment and Trees**

Comments:

41. Significant environmental features

- a. Rideau River NHS layer. About 60m distant.

42. Species at risk

- a. No concerns.

43. Environmental Impact Statements

- a. Though this site is technically within the 120m buffer to a natural heritage system feature, the need for an Environmental Impact Statement (EIS) can be waived. There is a substantial amount of development between the site and the protected features. This waiver is supported by the EIS Guidelines which state that an EIS can be waived in the case of "Minor developments (i.e., single lot severance, construction of a single-detached dwelling and/or accessory buildings on an existing lot, minor site alteration or minor changes in existing land use) where the natural feature(s) that triggered the EIS requirement are located adjacent to, not on, the subject property." Though this development may not be minor, the existing intervening development is enough to mitigate the difference.

#### 44. Bird-Safe Design Guidelines

- a. Though this building does not meet the height for which the Bird Safe mitigation measures are required, the applicant is recommended to consider adopting some of these measures regardless. The site's proximity to the Rideau River makes birdstrikes on the large glass windows likely, as the river is a major migration corridor. Incorporating some reduced-transparency glazing, reducing light pollution, or adding visual markers would be effective in reducing the likelihood of bird mortality.

#### 45. Tree Comments:

- a. Section 4.8.2 of the New Official Plan provides strong direction to maintain the urban forest canopy and its ecosystem services during intensification noting when considering the impacts on individual trees, planning and development decisions, including Committee of Adjustment decisions, shall give priority to the retention and protection of large, healthy trees over replacement plantings and compensation. Applications must address the cumulative impacts on the urban forest, over time and space, with the goal of 40% urban forest canopy cover in mind. Site plan control applications must create tree planting areas within the site and in the adjacent boulevard, meeting the City's soil volume requirements and planting standards.
  - i. A Tree Conservation Report is required with this application in accordance with Schedule E of the Tree Protection By-law.
  - ii. In this ward City trees are protected under the Tree Protection By-law and plans must be designed to allow for their retention and adequate protection. It appears that the proposed location for the new driveway entrance may impact the City oak tree – this must be determined, and if so, consider other locations for the driveway entrance.
  - iii. The TCR must confirm ownership of the trees along all property lines. Proposed plans (including parking, servicing, and grading) must be designed to limit impacts to boundary and adjacent trees, otherwise permission from the owners is required.
  - iv. The TCR must include a canopy cover assessment to determine the overall change to canopy cover based on the proposed impacts to existing trees from the design and proposed space for planting.
  - v. There appears to be a significant tree near the jog in the rear property line. If this is determined to be healthy in the TCR, it is strongly recommended to design the site to allow for its retention.

- b. A Landscape Plan is required with this application, in accordance with the Landscape Plan Terms of Reference, to show available softscape areas for tree planting, meeting the soil volume recommendations listed in the Tree Planting Requirements list below.
- c. The Official Plan requires that "On urban properties subject to site plan control or community planning permits, development shall create tree planting areas within the site and in the adjacent boulevard, as applicable, that meet the soil volume requirements in any applicable City standards or best management practices or in accordance with the recommendation of a Landscape Architect;"
  - i. Soft-scaped areas need to be created on site or within the Right of Way to provide adequate space to plant large-growing trees.
- d. A permit is required prior to any tree removal on site. The tree permit will be released upon site plan approval. Please contact the planner associated with the file or the Planning Forester, Nancy Young ([Nancy.Young@ottawa.ca](mailto:Nancy.Young@ottawa.ca)) for information on obtaining the tree permit.
- e. To ensure that no harm is caused to breeding birds, tree removal and vegetation clearing should be avoided during the migratory bird season (April 15 – August 15) as specified by The City of Ottawa's Environmental Impact Study Guidelines.

#### 46. Tree Conservation Report Requirements:

- a. a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
  - i. an approved TCR is a requirement of Site Plan approval.
  - ii. The TCR may be combined with the LP provided all information is supplied
- b. Any removal of privately-owned trees 10cm or larger in diameter, or city-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
- c. Compensation may be required for the removal of city owned trees.
- d. The TCR must contain 2 separate plans:
  - i. Plan/Map 1 - show existing conditions with tree cover information
  - ii. Plan/Map 2 - show proposed development with tree cover information

- iii. Please ensure retained trees are shown on the landscape plan
- e. the TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
- f. please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
- g. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
- h. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
  - i. the location of tree protection fencing must be shown on the plan
  - ii. show the critical root zone of the retained trees
- i. the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- j. For more information on the process or help with tree retention options, contact Nancy Young (Nancy.young@ottawa.ca) or on City of Ottawa

#### 47. Landscape Plan Tree Planting Requirements:

- a. Minimum Setbacks
  - i. Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
  - ii. Maintain 2.5m from curb
  - iii. Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
  - iv. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

b. Tree Specifications

- i. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- ii. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- iii. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- iv. Plant native trees whenever possible
- v. No root barriers, dead-man anchor systems, or planters are permitted.
- vi. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

c. Hard Surface Planting

- i. Curb style planter is highly recommended
- ii. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- iii. Trees are to be planted at grade

d. Soil Volume

- i. Please document on the LP that adequate soil volumes can be met:

| Tree Type/Size | Single Tree Soil Volume (m3) | Multiple Tree Soil Volume (m3/tree) |
|----------------|------------------------------|-------------------------------------|
| Ornamental     | 15                           | 9                                   |
| Columnar       | 15                           | 9                                   |
| Small          | 20                           | 12                                  |
| Medium         | 25                           | 15                                  |
| Large          | 30                           | 18                                  |
| Conifer        | 25                           | 15                                  |

- ii. Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

e. Sensitive Marine Clay

- i. Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

48. Tree Canopy

- a. The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
- b. At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate. Indicate on the plan the projected future canopy cover at 40 years for the site.

Feel free to contact Mark Elliott, ([Mark.Elliott@ottawa.ca](mailto:Mark.Elliott@ottawa.ca)) Environmental Planner, or Nancy Young ([Nancy.Young@ottawa.ca](mailto:Nancy.Young@ottawa.ca)), Forester, for follow-up questions.

**Parkland**

Comments:

49. Parkland Dedication By-law, Section 11- Exemptions, provides that No conveyance of land or payment of cash-in-lieu under this by-law is required for: a change of use from residential to commercial or industrial or for the alteration of an existing building resulting from a change of use from residential to commercial or industrial;

Feel free to contact Anissa McAlpine ([Anissa.McAlpine@ottawa.ca](mailto:Anissa.McAlpine@ottawa.ca)), Parks Planner, for follow-up questions.

**Other**

50. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.

- a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.
- b. Please refer to the HPDS information attached and [ottawa.ca/HPDS](http://ottawa.ca/HPDS) for more information.



Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly,

A handwritten signature in cursive script that reads "Erica C. Ogden-Fedak".

Erica C. Ogden-Fedak, MCIP, RPP  
Planner II

c.c. Nader Kadri, Urban Design  
Brian Morgan, Infrastructure Project Manager  
Rochelle Fortier, Transportation Project Manager  
Mark Elliott, Environmental Planner  
Nancy Young, Forester  
Anissa McAlpine, Parks Planner

Encl. Study and Plan Identification List  
List of Technical Agencies to Consult  
Supplemental Development Information  
Urban Design Brief Terms of Reference

## **APPENDIX B**

### **Water Supply Calculations**



## Water Supply Calculations

LRL File No. : 230464

**Project:** Proposed Multiuse Building

**Location:** 5580 Manotick Main Street, Manotick, ON

**Date:** 2026-07-08

**Designed:** M.Basnet

### Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

#### Institutional / Commercial / Industrial Demand

| Property Type | Unit Rate (L/ha/d) | Area (ha) | Demand (L/d) |
|---------------|--------------------|-----------|--------------|
| Commercial    | 28000              | 0.1       | 2800         |

| TOTAL DEMAND         |       |     |                                                   |     |
|----------------------|-------|-----|---------------------------------------------------|-----|
| Average Day Demand   | 2,800 | L/d | 0.03                                              | L/s |
| Maximum Day Factor   | 1.5   |     | ( Design Guidelines-Water Distribution Table 4.2) |     |
| Maximum Daily Demand | 4,200 | L/d | 0.05                                              | L/s |
| Peak Hour Factor     | 1.8   |     | ( Design Guidelines-Water Distribution Table 4.2) |     |
| Maximum Hour Demand  | 7,560 | L/d | 0.09                                              | L/s |

#### Water Service Pipe Sizing

$$Q = VA$$

Where: V = velocity (m/s)

A = area of pipe (m<sup>2</sup>)

Q = flow rate (L/s)

Assuming a maximum velocity of 1.5m/s, the diameter of pipe is calculated as:

$$\begin{aligned}\text{Minimum pipe diameter (d)} &= (4Q/\pi V)^{1/2} \\ &= 0.009 \quad \text{m} \\ &= 9 \quad \text{mm}\end{aligned}$$

$$\begin{aligned}\text{Proposed pipe diameter (d)} &= 25 \quad \text{mm} \\ &\text{(Based on City Design Guidelines for Water Distribution for Commercial Development)}\end{aligned}$$



## Fire Flow Calculations as per Ontario Building Code (OBC)

**LRL File No. :** 230464

**Project :** Proposed Multiuse Building

**Location :** 5580 Manotick Main Street, Manotick, ON

**Date :** January 7, 2025

**Prepared by :** M. Basnet

### Fire Protection Water Supply Calculations

$$Q = KVS_{Tot}$$

where

Q = minimum supply of water (L)

K = water supply coefficient from Table 1 of the OBC guidelines

V = total building volume (m<sup>3</sup>)

S<sub>Tot</sub> = total of spatial coefficient values from property line exposures on all sides

$$S_{Tot} = 1.0 + (S_{side1} + S_{side2} + S_{side3} + S_{side4})$$

|                               |      | Exposure Distance (m) |
|-------------------------------|------|-----------------------|
| S <sub>Side1</sub> =          | 0.00 | >10 (North)           |
| S <sub>Side2</sub> =          | 0.50 | 3.1 (East)            |
| S <sub>Side3</sub> =          | 0.00 | >10 (South)           |
| S <sub>Side4</sub> =          | 0.00 | >10 (West)            |
| <b>S<sub>Tot</sub> = 1.50</b> |      |                       |

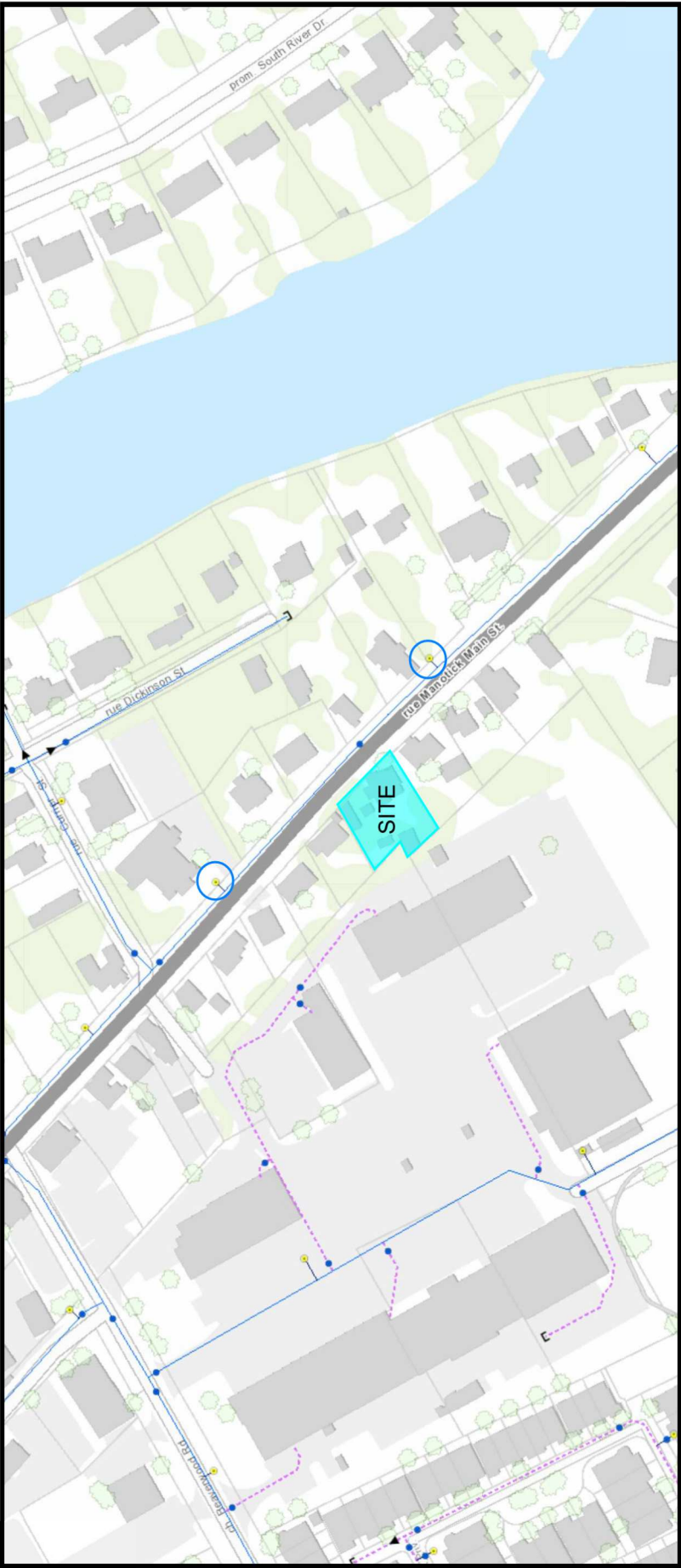
**K = 18** (Group D-combustible construction)

**V = 2934** m<sup>3</sup>

**Q = 79209** L

**Required Minimum Water Supply Flow Rate = 2700** L / min ( from Table 2 of the OBC guidelines)  
45 L/s

FIRE HYDRANTS LOCATIONS  
5880 MANOTICK MAIN STREET, MANOTICK, ON



LEGEND

Hydrants within 75m



Table 18.5.4.3 Maximum Fire Hydrant Fire Flow Capacity

| Distance to Building <sup>a</sup> |                 | Maximum Capacity <sup>b</sup> |          |
|-----------------------------------|-----------------|-------------------------------|----------|
| (ft)                              | (m)             | (gpm)                         | (L./min) |
| ≤ 250                             | ≤ 76            | 1500                          | 5678     |
| > 250 and ≤ 500                   | > 76 and ≤ 152  | 1000                          | 3785     |
| > 500 and ≤ 1000                  | > 152 and ≤ 305 | 750                           | 2839     |

<sup>a</sup>Measured in accordance with 18.5.1.4 and 18.5.1.5.

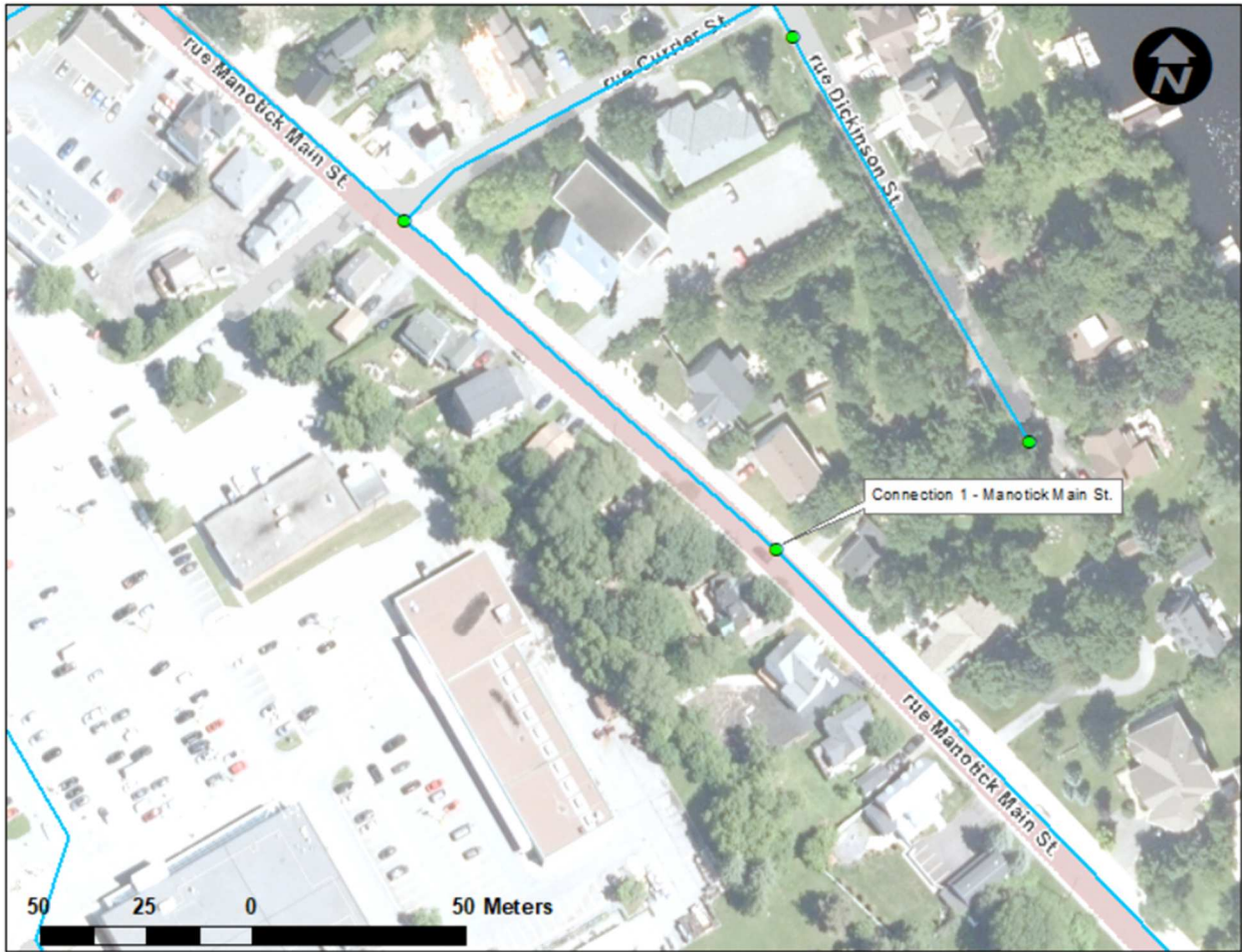
<sup>b</sup>Minimum 20 psi (139.9 kPa) residual pressure.

# Boundary Conditions 5580 Manotick Main St

## Provided Information

| Scenario             | Demand |       |
|----------------------|--------|-------|
|                      | L/min  | L/s   |
| Average Daily Demand | 2      | 0.03  |
| Maximum Daily Demand | 3      | 0.05  |
| Peak Hour            | 5      | 0.09  |
| Fire Flow Demand #1  | 2,700  | 45.00 |

## Location



## **Results**

### **Existing Condition**

#### **Connection 1 – Manotick Main St**

| <b>Demand Scenario</b>    | <b>Head (m)</b> | <b>Pressure<sup>1</sup> (psi)</b> |
|---------------------------|-----------------|-----------------------------------|
| Maximum HGL               | 156.2           | 92.9                              |
| Peak Hour                 | 142.0           | 72.8                              |
| Max Day plus Fire Flow #1 | 142.0           | 72.8                              |

<sup>1</sup> Ground Elevation = 90.8 m

### **Future SUC**

#### **Connection 1 – Manotick Main St**

| <b>Demand Scenario</b>    | <b>Head (m)</b> | <b>Pressure<sup>1</sup> (psi)</b> |
|---------------------------|-----------------|-----------------------------------|
| Maximum HGL               | 146.6           | 79.3                              |
| Peak Hour                 | 142.9           | 74.0                              |
| Max Day plus Fire Flow #1 | 142.8           | 73.8                              |

<sup>1</sup> Ground Elevation = 90.8 m

## **Notes**

1. Results present are for preliminary assumed connection on Manotick Main Street water main. Boundary condition results should be updated with final requested connection once available.
2. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
  - a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
  - b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

## **Disclaimer**

*The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.*

## **APPENDIX C**

### **Wastewater Collection Calculations**

LRL Associates Ltd.  
Sanitary Sewer Design Sheet

|                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |             |      |               |      |               |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |            |               |               |               |               |              |               |               |                 |                                                                                                                                                |        |      |       |          |                 |                 |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|-------------|------|---------------|------|---------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------|---------------|---------------|---------------|---------------|--------------|---------------|---------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|-------|----------|-----------------|-----------------|-------------------|
| <div><div><div>LRL</div><div>ENGINEERING   INGÉNIERIE</div></div></div> <div><div>LRL File No.: 230464</div><div>Project: Proposed Multiuse Building</div><div>Location: 5580 Manotick Main St, Ottawa, ON</div><div>Designed: M.L.</div><div>Checked: M.B.</div><div>Date: July 16, 2025</div><div>DWG. Reference: C401</div></div> |           |          |             |      |               |      |               |              | <div>Sanitary Design Parameters</div> <div>Commercial &amp; Institutional Flow = 28000 L/ha/day</div> <div>Light Industrial Flow = 35000 L/ha/day</div> <div>Heavy Industrial Flow = 55000 L/ha/day</div> <div>Maximum Residential Peak Factor = 4.0</div> <div>Commercial &amp; Institutional Peak Factor = 1.5</div> <div>Average Daily Flow = 280 L/p/day</div> <div>Industrial Peak Factor = as per Appendix 4-B</div> <div>Extraneous Flow = 0.33 L/s/ha</div> |               |            |               |               |               |               |              |               |               |                 | <div>Pipe Design Parameters</div> <div>Maximum Velocity = 3.00 m/s</div> <div>Minimum Velocity = 0.60 m/s</div> <div>Manning's n = 0.013</div> |        |      |       |          |                 |                 |                   |
| LOCATION                                                                                                                                                                                                                                                                                                                                                                                                              |           |          | RESIDENTIAL |      |               |      |               |              | COMMERCIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               | INDUSTRIAL |               |               | INSTITUTIONAL |               | C+I+I        | INFILTRATION  |               |                 | TOTAL<br>FLOW, Q                                                                                                                               | PIPE   |      |       |          |                 |                 |                   |
| STREET                                                                                                                                                                                                                                                                                                                                                                                                                | FROM      | TO       | AREA        | POP. | ACCU.<br>AREA | POP. | PEAK<br>FACT. | PEAK<br>FLOW | AREA                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ACCU.<br>AREA | AREA       | ACCU.<br>AREA | PEAK<br>FACT. | AREA          | ACCU.<br>AREA | PEAK<br>FLOW | TOTAL<br>AREA | ACCU.<br>AREA | INFILT.<br>FLOW |                                                                                                                                                | LENGTH | DIA. | SLOPE | MATERIAL | CAP.<br>Q(FULL) | VEL.<br>V(FULL) | RATIO<br>Q /QFULL |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          | (Ha)        |      | (Ha)          |      |               | (L/s)        | (Ha)                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (Ha)          |            | (Ha)          |               | (Ha)          | (Ha)          | (L/s)        | (Ha)          | (Ha)          | (L/s)           | (L/s)                                                                                                                                          | (m)    | (mm) | (%)   |          | (L/s)           | (m/s)           |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       | BLDG/STUB | SAN MH 1 |             |      |               |      |               |              | 0.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.10          |            |               |               |               |               | 0.05         | 0.10          | 0.100         | 0.03            | 0.08                                                                                                                                           | 1.1    | 150  | 2.50% | PVC      | 24.08           | 1.36            | 0.003             |
| Manotick Main Street                                                                                                                                                                                                                                                                                                                                                                                                  | SAN MH 01 | Ex. SAN  |             |      |               |      |               |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |            |               |               |               |               |              |               |               |                 | 0.08                                                                                                                                           | 7.5    | 150  | 2.50% | PVC      | 24.08           | 1.36            | 0.003             |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |             |      |               |      |               |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |            |               |               |               |               |              |               |               |                 |                                                                                                                                                |        |      |       |          |                 |                 |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |             |      |               |      |               |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |            |               |               |               |               |              |               |               |                 |                                                                                                                                                |        |      |       |          |                 |                 |                   |

Notes: Existing inverts and slopes are estimated. They are to be confirmed on-site.

## **APPENDIX D**

**Stormwater Management Calculations**

**Hydrovex ICD**

**Stormceptor OGS**

# LRL Associates Ltd.

## Storm Watershed Summary



**LRL File No.** 230464

**Project:** Proposed Multiuse Building

**Location:** 5580 Manotick Main St, Ottawa, ON

**Date:** July 8, 2025

**Designed:** M.L.

**Checked:** M.B.

**Dwg Reference:** C701, C702

### Pre-Development Catchments

| Catchment             | C = 0.20     | C = 0.80     | C = 0.90     | Total Area (ha) | Combined C  |
|-----------------------|--------------|--------------|--------------|-----------------|-------------|
| ECA-01 (uncontrolled) | 0.070        | 0.000        | 0.032        | 0.102           | 0.42        |
| <b>Total</b>          | <b>0.070</b> | <b>0.000</b> | <b>0.032</b> | <b>0.102</b>    | <b>0.42</b> |

### Post-Development Catchments

| Catchment            | C = 0.20     | C = 0.8      | C = 0.90     | Total Area (ha) | Combined C  |
|----------------------|--------------|--------------|--------------|-----------------|-------------|
| CA-01 (controlled)   | 0.000        | 0.000        | 0.082        | 0.082           | 0.90        |
| CA-02 (uncontrolled) | 0.005        | 0.000        | 0.001        | 0.006           | 0.31        |
| CA-03 (uncontrolled) | 0.004        | 0.000        | 0.000        | 0.004           | 0.20        |
| CA-04 (uncontrolled) | 0.006        | 0.000        | 0.000        | 0.006           | 0.20        |
| CA-05 (uncontrolled) | 0.004        | 0.000        | 0.000        | 0.004           | 0.20        |
| <b>Total</b>         | <b>0.019</b> | <b>0.000</b> | <b>0.083</b> | <b>0.102</b>    | <b>0.77</b> |



LRL File No. 230464  
**Project:** Proposed Multiuse Building  
**Location:** 5580 Manotick Main St, Ottawa, ON  
**Date:** July 8, 2025  
**Designed:** M.L.  
**Checked:** M.B.  
**Drawing Ref.:** C601

**Stormwater Management  
Design Sheet**

**STORM - 100 YEAR**

**Runoff Equation**

$Q = 2.78CIA$  (L/s)  
 C = Runoff coefficient  
 $I = \text{Rainfall intensity (mm/hr)} = A / (T_d + C)^B$   
 A = Area (ha)  
 $T_d$  = Time of duration (min)

**Pre-Development Release Rate**

**IDF Curve Equations**

$I_{100} = 1735.688 / (T_d + 6.014)^{0.820}$       A = 1735.688      B = 0.820      C = 6.014

C = 0.42  
 $I_{100} = 178.6$  mm/hr  
 $T_d = 10$  min  
 A = 0.102 ha  
 100 Year Release Rate = 21.07 L/s  
 2 Year Release Rate = 9.06 L/s (Allowable Release Rate)

**Post-development Stormwater Management**

|  |                             |              |           |              | $\Sigma R_{2\&5}$ | $\Sigma R_{100}$ |
|--|-----------------------------|--------------|-----------|--------------|-------------------|------------------|
|  | Total Site Area =           | 0.102        | ha        | $\Sigma R =$ | 0.77              | 0.96             |
|  | CA-01 (controlled)          | 0.082        | ha        | R =          | 0.90              | 1.00             |
|  | <b>Total (controlled)</b>   | <b>0.082</b> | <b>ha</b> | <b>R =</b>   | <b>0.90</b>       | <b>1.00</b>      |
|  | CA-02 (uncontrolled)        | 0.006        | ha        | R =          | 0.31              | 0.38             |
|  | CA-03 (uncontrolled)        | 0.004        | ha        | R =          | 0.20              | 0.25             |
|  | CA-04 (uncontrolled)        | 0.006        | ha        | R =          | 0.20              | 0.25             |
|  | CA-05 (uncontrolled)        | 0.004        | ha        | R =          | 0.20              | 0.25             |
|  | <b>Total (uncontrolled)</b> | <b>0.020</b> | <b>ha</b> | <b>R =</b>   | <b>0.23</b>       | <b>0.29</b>      |
|  | <b>Total</b>                | <b>0.102</b> | <b>ha</b> | <b>R =</b>   | <b>0.77</b>       | <b>0.96</b>      |

**100 Year Post-development Stormwater Management**

| Time (min) | Intensity (mm/hr) | Controlled Runoff (L/s) | Storage Volume (m <sup>3</sup> ) | Controlled Release Rate (L/s) | Uncontrolled Runoff (L/s) | Total Release Rate (L/s) |
|------------|-------------------|-------------------------|----------------------------------|-------------------------------|---------------------------|--------------------------|
| 10         | 178.56            | 40.65                   | 20.66                            | 6.23                          | 2.84                      | 9.06                     |
| 15         | 142.89            | 32.53                   | 23.68                            | 6.23                          | 2.84                      | 9.06                     |
| 20         | 119.95            | 27.31                   | 25.30                            | 6.23                          | 2.84                      | 9.06                     |
| 25         | 103.85            | 23.64                   | 26.13                            | 6.23                          | 2.84                      | 9.06                     |
| 30         | 91.87             | 20.92                   | 26.44                            | 6.23                          | 2.84                      | 9.06                     |
| 35         | 82.58             | 18.80                   | 26.41                            | 6.23                          | 2.84                      | 9.06                     |
| 40         | 75.15             | 17.11                   | 26.12                            | 6.23                          | 2.84                      | 9.06                     |
| 45         | 69.05             | 15.72                   | 25.64                            | 6.23                          | 2.84                      | 9.06                     |
| 50         | 63.95             | 14.56                   | 25.01                            | 6.23                          | 2.84                      | 9.06                     |
| 55         | 59.62             | 13.58                   | 24.25                            | 6.23                          | 2.84                      | 9.06                     |
| 60         | 55.89             | 12.73                   | 23.40                            | 6.23                          | 2.84                      | 9.06                     |
| 70         | 49.79             | 11.34                   | 21.46                            | 6.23                          | 2.84                      | 9.06                     |
| 80         | 44.99             | 10.24                   | 19.28                            | 6.23                          | 2.84                      | 9.06                     |
| 90         | 41.11             | 9.36                    | 16.92                            | 6.23                          | 2.84                      | 9.06                     |
| 100        | 37.90             | 8.63                    | 14.42                            | 6.23                          | 2.84                      | 9.06                     |
| 110        | 35.20             | 8.01                    | 11.81                            | 6.23                          | 2.84                      | 9.06                     |
| 120        | 32.89             | 7.49                    | 9.10                             | 6.23                          | 2.84                      | 9.06                     |

**On-site stormwater detention**

Storage required = 26.44 m<sup>3</sup>  
 Storage provided = 31.87 m<sup>3</sup> (Refer to DWG C601)



LRL File No. 230464  
**Project:** Proposed Multiuse Building  
**Location:** 5580 Manotick Main St, Ottawa, ON  
**Date:** July 8, 2025  
**Designed:** M.L.  
**Checked:** M.B.  
**Drawing Ref.:** C601

**Stormwater Management  
Design Sheet**

**STORM - 2 YEAR**

**Runoff Equation**

$Q = 2.78CIA \text{ (L/s)}$   
 $C$  = Runoff coefficient  
 $I$  = Rainfall intensity (mm/hr) =  $A / (T_d + C)^B$   
 $A$  = Area (ha)  
 $T_d$  = Time of duration (min)

**Pre-Development Release Rate**

**IDF Curve Equations**

$I_2 = 732.951 / (T_d + 6.199)^{0.810}$        $A = 732.951$        $B = 0.810$        $C = 6.199$

$C = 0.42$   
 $I_2 = 76.8 \text{ mm/hr}$   
 $T_d = 10 \text{ min}$   
 $A = 0.102 \text{ ha}$   
**2 Year Release Rate = 9.06 L/s**

**Post-development Stormwater Management**

|  |                             |              |           | $\sum R_{2\&5}$                   |
|--|-----------------------------|--------------|-----------|-----------------------------------|
|  | <b>Total Site Area =</b>    | <b>0.102</b> | <b>ha</b> | <b><math>\sum R = 0.77</math></b> |
|  | CA-01 (controlled)          | 0.082        | ha        | R = 0.90                          |
|  | <b>Total (controlled)</b>   | <b>0.082</b> | <b>ha</b> | <b>R = 0.90</b>                   |
|  | CA-02 (uncontrolled)        | 0.006        | ha        | R = 0.31                          |
|  | CA-03 (uncontrolled)        | 0.004        | ha        | R = 0.20                          |
|  | CA-04 (uncontrolled)        | 0.006        | ha        | R = 0.20                          |
|  | CA-05 (uncontrolled)        | 0.004        | ha        | R = 0.20                          |
|  | <b>Total (uncontrolled)</b> | <b>0.020</b> | <b>ha</b> | <b>R = 0.23</b>                   |
|  | <b>Total</b>                | <b>0.102</b> | <b>ha</b> | <b>R = 0.77</b>                   |

**2 Year Post-development Stormwater Management**

| Time (min) | Intensity (mm/hr) | Controlled Runoff (L/s) | Storage Volume (m <sup>3</sup> ) | Controlled Release Rate (L/s) | Uncontrolled Runoff (L/s) | Total Release Rate (L/s) |
|------------|-------------------|-------------------------|----------------------------------|-------------------------------|---------------------------|--------------------------|
| 10         | 76.81             | 15.74                   | 5.71                             | 6.23                          | 0.98                      | 7.20                     |
| 15         | 61.77             | 12.66                   | 5.79                             | 6.23                          | 0.98                      | 7.20                     |
| 20         | 52.03             | 10.66                   | 5.32                             | 6.23                          | 0.98                      | 7.20                     |
| 25         | 45.17             | 9.26                    | 4.54                             | 6.23                          | 0.98                      | 7.20                     |
| 30         | 40.04             | 8.21                    | 3.56                             | 6.23                          | 0.98                      | 7.20                     |
| 35         | 36.06             | 7.39                    | 2.44                             | 6.23                          | 0.98                      | 7.20                     |
| 40         | 32.86             | 6.73                    | 1.22                             | 6.23                          | 0.98                      | 7.20                     |
| 45         | 30.24             | 6.20                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 50         | 28.04             | 5.75                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 55         | 26.17             | 5.36                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 60         | 24.56             | 5.03                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 70         | 21.91             | 4.49                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 80         | 19.83             | 4.06                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 90         | 18.14             | 3.72                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 100        | 16.75             | 3.43                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 110        | 15.57             | 3.19                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |
| 120        | 14.56             | 2.98                    | 0.00                             | 6.23                          | 0.98                      | 7.20                     |

**On-site stormwater detention**

**Storage required = 5.79 m<sup>3</sup>**

**LRL Associates Ltd.**  
Storm Sewer Design Sheet



**LRL File No.** 230464

**Project:** Proposed Multiuse Building

**Location:** 5580 Manotick Main St, Ottawa, ON

**Date:** July 16, 2025

**Designed:** M.L.

**Checked:** M.B.

**Dwg. Ref.:** C401,C702

**Rational Method**

Q = 2.78CIA

Q = Peak flow (L/s)

A = Drainage area (ha)

C = Runoff coefficient

I = Rainfall intensity (mm/hr)

**Runoff coefficient (C)**

Grass = 0.2

Gravel = 0.8

Asphalt / rooftop = 0.9

**IDF curve**

Ottawa Macdonald-Cartier International Airport

Storm event: 5 Years

**Intensity equation:**

$$I_5 = 998.071 / (Td + 6.053)^{0.814} \quad (\text{mm/hr})$$

**Pipe Design Parameters**

Minimum velocity = 0.80 m/s

Manning's "n" = 0.013

| LOCATION           |         |        | AREA (ha) |          |          | FLOW          |               |               |                    |               |                     | STORM SEWER |      |       |        |                                    |               |              |                             |
|--------------------|---------|--------|-----------|----------|----------|---------------|---------------|---------------|--------------------|---------------|---------------------|-------------|------|-------|--------|------------------------------------|---------------|--------------|-----------------------------|
| WATERSHED / STREET | From MH | To MH  | C = 0.20  | C = 0.80 | C = 0.90 | Indiv. 2.78AC | Accum. 2.78AC | Time of Conc. | Rainfall Intensity | Peak Flow (Q) | Controlled Flow (Q) | Pipe Dia.   | Type | Slope | Length | Capacity Full (Q <sub>FULL</sub> ) | Velocity Full | Time of Flow | Ratio Q / Q <sub>FULL</sub> |
|                    |         |        |           |          |          |               |               | (min)         | (mm/hr)            | (L/s)         | (L/s)               | (mm)        |      | (%)   | (m)    | (L/s)                              | (m/s)         | (min)        |                             |
| CA-01              | CBMH01  | MH02   | 0.000     | 0.000    | 0.082    | 0.20          | 0.20          | 10.00         | 104.19             | 21.35         |                     | 375         | PVC  | 0.25% | 11.0   | 87.67                              | 0.79          | 0.23         | 0.24                        |
|                    | MH02    | OGS    |           |          |          |               | 0.20          | 10.23         | 102.99             | 21.10         | 6.23                | 250         | PVC  | 0.45% | 2.5    | 39.89                              | 0.81          | 0.05         | 0.16                        |
|                    | OGS     | MH03   |           |          |          |               | 0.20          | 10.28         | 102.73             | 21.05         | 6.23                | 250         | PVC  | 0.45% | 6.5    | 39.89                              | 0.81          | 0.13         | 0.16                        |
|                    | MH03    | CBMH04 |           |          |          |               | 0.20          | 10.42         | 102.05             | 20.91         | 6.23                | 250         | PVC  | 0.45% | 14.2   | 39.89                              | 0.81          | 0.29         | 0.16                        |

## SDD3 SIZING REPORT

2025-01-16

| PROJECT INFORMATION |                            |
|---------------------|----------------------------|
| Project Name        | Proposed Multiuse Building |
| Location            | 5580 Manotick Main St      |
| Province            | Ontario                    |
| Unit ID             |                            |
| Project Number      |                            |

| SITE INFORMATION             |                |
|------------------------------|----------------|
| Site Area (hectares)         | 0.081          |
| Runoff Coefficient           | 0.89           |
| SIZING CRITERIA              |                |
| Rainfall Station             | OTTAWA CDA RCS |
| Target TSS removal (%)       | 80             |
| Particle Size Distribution   | Fine PSD       |
| Peak or Regulated Flow (L/s) |                |

### STORMWATER TREATMENT RECOMMENDATION

| RESULTS SUMMARY |         |           |
|-----------------|---------|-----------|
| Model           | TSS (%) | Volume(%) |
| SDD3-900        | 83      | 100       |
| SDD3-1200       | 84      | 100       |
| SDD3-1500       | 85      | 100       |
| SDD3-1600       | 85      | 100       |
| SDD3-1800       | 85      | 100       |
| SDD3-2400       | 85      | 100       |
| SDD3-3000       | 85      | 100       |
| SDD3-3200       | 85      | 100       |
| SDD3-3600       | 85      | 100       |
| SDD3-4000       | 85      | 100       |

|                   |           |
|-------------------|-----------|
| Recommended Model | SDD3-1200 |
|-------------------|-----------|

| Annual TSS removal efficiency (%) <sup>1</sup> | Manhole Diameter (mm) | Maximum Pipe Diameter (mm) | Oil Storage Capacity (m <sup>3</sup> ) | Sediment Storage Capacity (m <sup>3</sup> ) | Height from invert to SDD floor (m) | Treatment area (m <sup>2</sup> ) | Max treatment flow (lps) |
|------------------------------------------------|-----------------------|----------------------------|----------------------------------------|---------------------------------------------|-------------------------------------|----------------------------------|--------------------------|
| 84                                             | 1220                  | 900                        | 0.28                                   | 3.66                                        | 2.36                                | 1.17                             | 51                       |

### DETAILED SDD3 SIZING REPORT

| Rainfall Intensity (mm / hr) | Total Rainfall (%) | Cumulative rainfall volume (%) | Flow Rate (Lps) | Surface Loading Rate (L/s/m <sup>2</sup> ) | Removal Efficiency (%) | Incremental Removal (%) | Cumulative Removal (%) |
|------------------------------|--------------------|--------------------------------|-----------------|--------------------------------------------|------------------------|-------------------------|------------------------|
| 1.0                          | 22.30              | 22.3                           | 0               | 0.1                                        | 84.8                   | 18.9                    | 19                     |
| 1.5                          | 8.90               | 31.2                           | 0               | 0.1                                        | 84.8                   | 7.5                     | 26                     |
| 2.0                          | 8.90               | 40.1                           | 0               | 0.1                                        | 84.8                   | 7.5                     | 34                     |
| 2.5                          | 6.55               | 46.7                           | 0               | 0.2                                        | 84.8                   | 5.6                     | 40                     |
| 3.0                          | 6.55               | 53.2                           | 0               | 0.2                                        | 84.8                   | 5.6                     | 45                     |
| 3.5                          | 4.60               | 57.8                           | 0               | 0.2                                        | 84.8                   | 3.9                     | 49                     |
| 4.0                          | 4.60               | 62.4                           | 0               | 0.2                                        | 84.8                   | 3.9                     | 53                     |
| 4.5                          | 3.25               | 65.7                           | 0               | 0.3                                        | 84.8                   | 2.8                     | 56                     |
| 5.0                          | 3.25               | 68.9                           | 0               | 0.3                                        | 84.8                   | 2.8                     | 58                     |
| 5.5                          | 2.55               | 71.5                           | 0               | 0.3                                        | 84.8                   | 2.2                     | 61                     |
| 6.0                          | 2.55               | 74.0                           | 0               | 0.4                                        | 84.8                   | 2.2                     | 63                     |
| 6.5                          | 1.70               | 75.7                           | 0               | 0.4                                        | 84.8                   | 1.4                     | 64                     |
| 7.0                          | 1.70               | 77.4                           | 1               | 0.4                                        | 84.8                   | 1.4                     | 66                     |
| 7.5                          | 1.50               | 78.9                           | 1               | 0.5                                        | 84.8                   | 1.3                     | 67                     |

|                               |      |       |   |     |      |                            |    |
|-------------------------------|------|-------|---|-----|------|----------------------------|----|
| 8.0                           | 1.50 | 80.4  | 1 | 0.5 | 84.8 | 1.3                        | 68 |
| 8.5                           | 1.80 | 82.2  | 1 | 0.5 | 84.8 | 1.5                        | 70 |
| 9.0                           | 1.80 | 84.0  | 1 | 0.6 | 84.8 | 1.5                        | 71 |
| 9.5                           | 1.25 | 85.3  | 1 | 0.6 | 84.8 | 1.1                        | 72 |
| 10.0                          | 1.25 | 86.5  | 1 | 0.6 | 84.8 | 1.1                        | 73 |
| 10.5                          | 0.85 | 87.4  | 1 | 0.6 | 84.8 | 0.7                        | 74 |
| 11.0                          | 0.85 | 88.2  | 1 | 0.7 | 84.6 | 0.7                        | 75 |
| 11.5                          | 0.70 | 88.9  | 1 | 0.7 | 84.2 | 0.6                        | 75 |
| 12.0                          | 0.70 | 89.6  | 1 | 0.7 | 83.8 | 0.6                        | 76 |
| 12.5                          | 0.95 | 90.6  | 1 | 0.8 | 83.4 | 0.8                        | 77 |
| 13.0                          | 0.95 | 91.5  | 1 | 0.8 | 83.0 | 0.8                        | 78 |
| 13.5                          | 0.65 | 92.2  | 1 | 0.8 | 82.6 | 0.5                        | 78 |
| 14.0                          | 0.65 | 92.8  | 1 | 0.9 | 82.2 | 0.5                        | 79 |
| 14.5                          | 0.65 | 93.5  | 1 | 0.9 | 81.8 | 0.5                        | 79 |
| 15.0                          | 0.65 | 94.1  | 1 | 0.9 | 81.4 | 0.5                        | 80 |
| 15.5                          | 0.40 | 94.5  | 1 | 1.0 | 81.0 | 0.3                        | 80 |
| 16.0                          | 0.40 | 94.9  | 1 | 1.0 | 80.6 | 0.3                        | 80 |
| 16.5                          | 0.40 | 95.3  | 1 | 1.0 | 80.2 | 0.3                        | 81 |
| 17.0                          | 0.40 | 95.7  | 1 | 1.0 | 79.8 | 0.3                        | 81 |
| 17.5                          | 0.20 | 95.9  | 1 | 1.1 | 79.4 | 0.2                        | 81 |
| 18.0                          | 0.20 | 96.1  | 1 | 1.1 | 79.1 | 0.2                        | 81 |
| 18.5                          | 0.25 | 96.4  | 1 | 1.1 | 78.7 | 0.2                        | 81 |
| 19.0                          | 0.25 | 96.6  | 1 | 1.2 | 78.3 | 0.2                        | 82 |
| 19.5                          | 0.10 | 96.7  | 1 | 1.2 | 77.9 | 0.1                        | 82 |
| 20.0                          | 0.10 | 96.8  | 1 | 1.2 | 77.5 | 0.1                        | 82 |
| 20.5                          | 0.25 | 97.1  | 1 | 1.3 | 77.1 | 0.2                        | 82 |
| 21.0                          | 0.25 | 97.3  | 2 | 1.3 | 76.7 | 0.2                        | 82 |
| 21.5                          | 0.15 | 97.5  | 2 | 1.3 | 76.3 | 0.1                        | 82 |
| 22.0                          | 0.15 | 97.6  | 2 | 1.4 | 76.1 | 0.1                        | 82 |
| 22.5                          | 0.55 | 98.2  | 2 | 1.4 | 76.0 | 0.4                        | 83 |
| 23.0                          | 0.55 | 98.7  | 2 | 1.4 | 75.9 | 0.4                        | 83 |
| 23.5                          | 0.15 | 98.9  | 2 | 1.4 | 75.8 | 0.1                        | 83 |
| 24.0                          | 0.15 | 99.0  | 2 | 1.5 | 75.7 | 0.1                        | 83 |
| 24.5                          | 0.00 | 99.0  | 2 | 1.5 | 75.6 | 0.0                        | 83 |
| 25.0                          | 0.00 | 99.0  | 2 | 1.5 | 75.5 | 0.0                        | 83 |
| 27.5                          | 0.50 | 99.5  | 2 | 1.7 | 75.0 | 0.4                        | 84 |
| 30.0                          | 0.50 | 100.0 | 2 | 1.9 | 74.5 | 0.4                        | 84 |
| 32.5                          | 0.00 | 100.0 | 2 | 2.0 | 74.0 | 0.0                        | 84 |
| 35.0                          | 0.00 | 100.0 | 3 | 2.2 | 73.5 | 0.0                        | 84 |
| 37.5                          | 0.00 | 100.0 | 3 | 2.3 | 73.0 | 0.0                        | 84 |
| 40.0                          | 0.00 | 100.0 | 3 | 2.5 | 72.5 | 0.0                        | 84 |
| 42.5                          | 0.00 | 100.0 | 3 | 2.6 | 71.9 | 0.0                        | 84 |
| 45.0                          | 0.00 | 100.0 | 3 | 2.8 | 71.4 | 0.0                        | 84 |
| 47.5                          | 0.00 | 100.0 | 3 | 2.9 | 70.9 | 0.0                        | 84 |
| 50.0                          | 0.00 | 100.0 | 4 | 3.1 | 70.4 | 0.0                        | 84 |
| Total cumulative rainfall (%) |      | 100   |   |     |      | Net Annual TSS removal (%) | 84 |

1 Performance efficiency based on Fine PSD particle size distribution

## SDD3 Oil Grit Separator

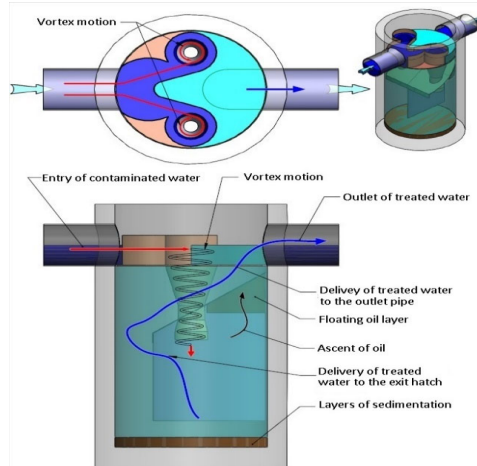


Figure 2. SDD3 operation

### HOW IT WORKS

- 1- Untreated storm water enters the SDD3 unit through the inlet pipe
- 2- The storm water flow is directed and distributed by the double vortex device
- 3-Gravitational and hydrodynamic forces created by the double vortex device separate the suspended particles from the stormwater and settle them at the bottom of the unit.
- 4- Hydrodynamic and buoyancy forces concentrate and separate the oils and the flottable materials, which naturally rise and are trapped in the oil storage area.
- 5- Treated storm water is finally discharged through the outlet pipe.

### INSTALLATION AND MAINTENANCE

- The SDD3 installation is easy and similar to a conventional manhole installation. SDD3 may be installed online or offline depending on the project requirements. The inlet and outlet pipe are located at the same elevation facilitating an easier installation process.
- Inspection and maintenance is simple and easy, with no need to enter the unit.

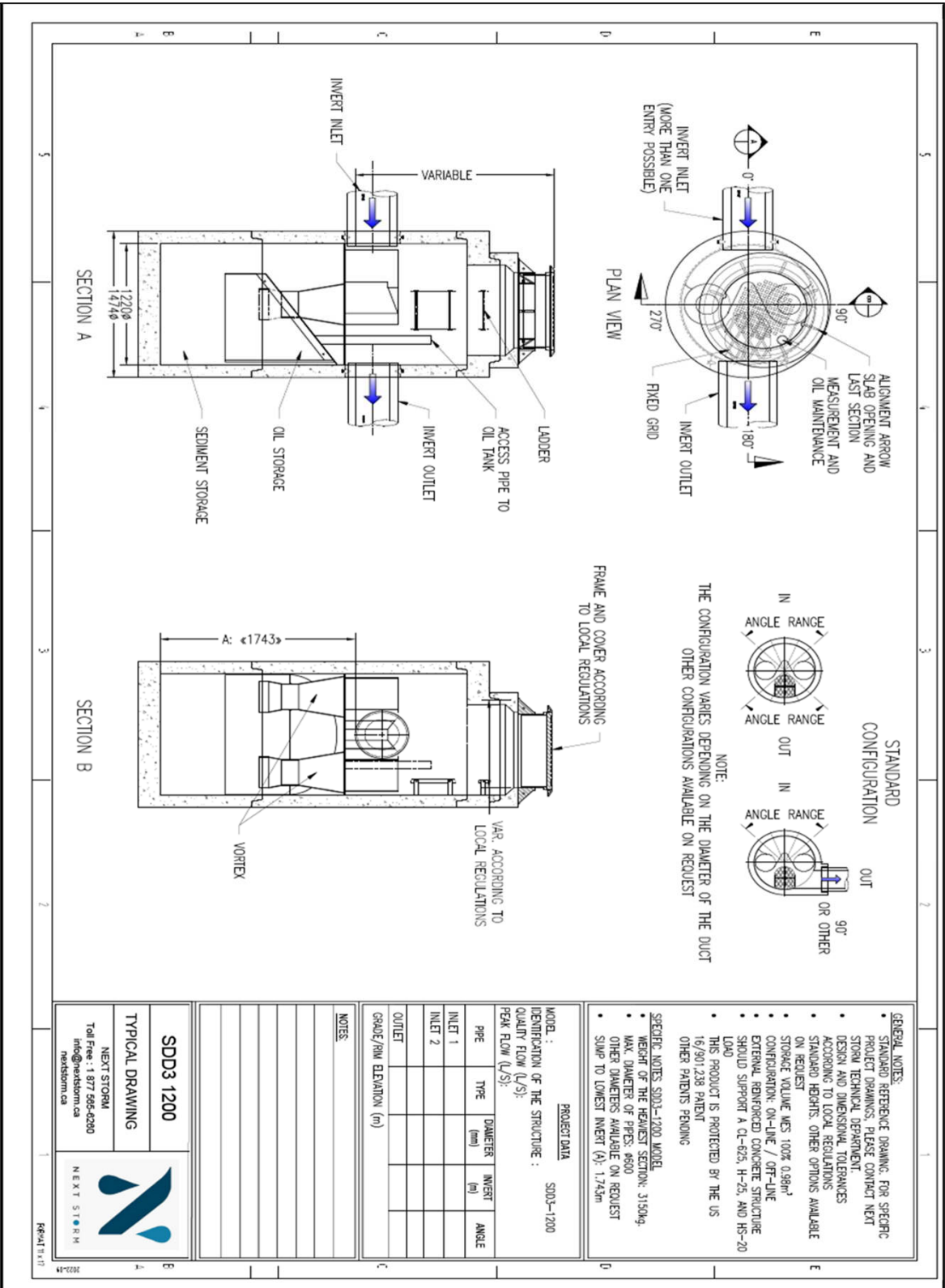
### SIZING AND DESIGN

The SDD3 can be sized to meet project-specific stormwater requirements. The actual model selection will depend on the treatment flow, particle size distribution and local regulations.

Table 1. SDD3 models and standard capacities

| SDD3 Model | Diameter (mm) | Height from invert to SDD3 floor (m) | Sediment storage capacity (m <sup>3</sup> )* | Oil storage capacity (m <sup>3</sup> ) |
|------------|---------------|--------------------------------------|----------------------------------------------|----------------------------------------|
| SDD3-900   | 915           | 1.39                                 | 0.51                                         | 0.12                                   |
| SDD3-1200  | 1220          | 1.74                                 | 0.96                                         | 0.28                                   |
| SDD3-1600  | 1600          | 2.06                                 | 1.77                                         | 0.65                                   |
| SDD3-1800  | 1830          | 2.36                                 | 3.66                                         | 0.98                                   |
| SDD3-2100  | 2130          | 2.79                                 | 3.94                                         | 1.55                                   |
| SDD3-2400  | 2440          | 3.15                                 | 6.54                                         | 2.33                                   |
| SDD3-3000  | 3048          | 3.47                                 | 9.84                                         | 4.54                                   |
| SDD3-3200  | 3200          | 3.69                                 | 12.03                                        | 4.54                                   |
| SDD3-3600  | 3660          | 3.95                                 | 12.39                                        | 7.87                                   |
| SDD3-4000  | 4052          | 3.972                                | 16.11                                        | 7.87                                   |

\*Storage capacity can be adjusted according to the specific project requirements.





## SDD3 Oil Grit Separator



**An innovative storm water treatment system that provides extraordinary and dependable removal of storm water pollutants while minimizing washouts**

The SDD3 by *NEXT Stormwater Solutions* is a hydrodynamic oil and grit separator that utilizes both gravitational and centrifugal forces to capture and retain suspended sediments, floating particles and oils from stormwater runoff. The SDD3 unique design ensures optimal storm water treatment during light and heavy rainfall events.

### KEY FEATURES AND ADVANTAGE!

- **Double vortex** system specially designed to maximize separation of sediments and other pollutants from stormwater runoff.
- **Designed and manufactured in Canada** and verified by an independent third party laboratory.
- The environmental performance claim for SDD3 is **verified by the Canadian ETV Program**<sup>1</sup>.
- SDD3 provides 91% oil removal and retention<sup>2</sup>
- SDD3 is suitable for both **online and offline installations** and has shown to have a negligible effect on the hydraulic grade line (HGL).
- SDD3 is available in a **wide range of models** to meet the project requirements.
- **Simple installation** for it is similar to a conventional manhole.
- **Safe and easy inspection and maintenance** for all activities are performed at the surface.

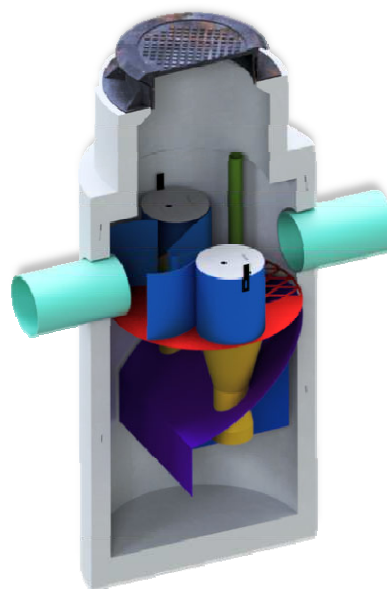


Figure 1. Typical SDD3

### COMPONENTS

The SDD3 external structure is a reinforced concrete chamber that is suitable for HS-20 and CL-625 loads.

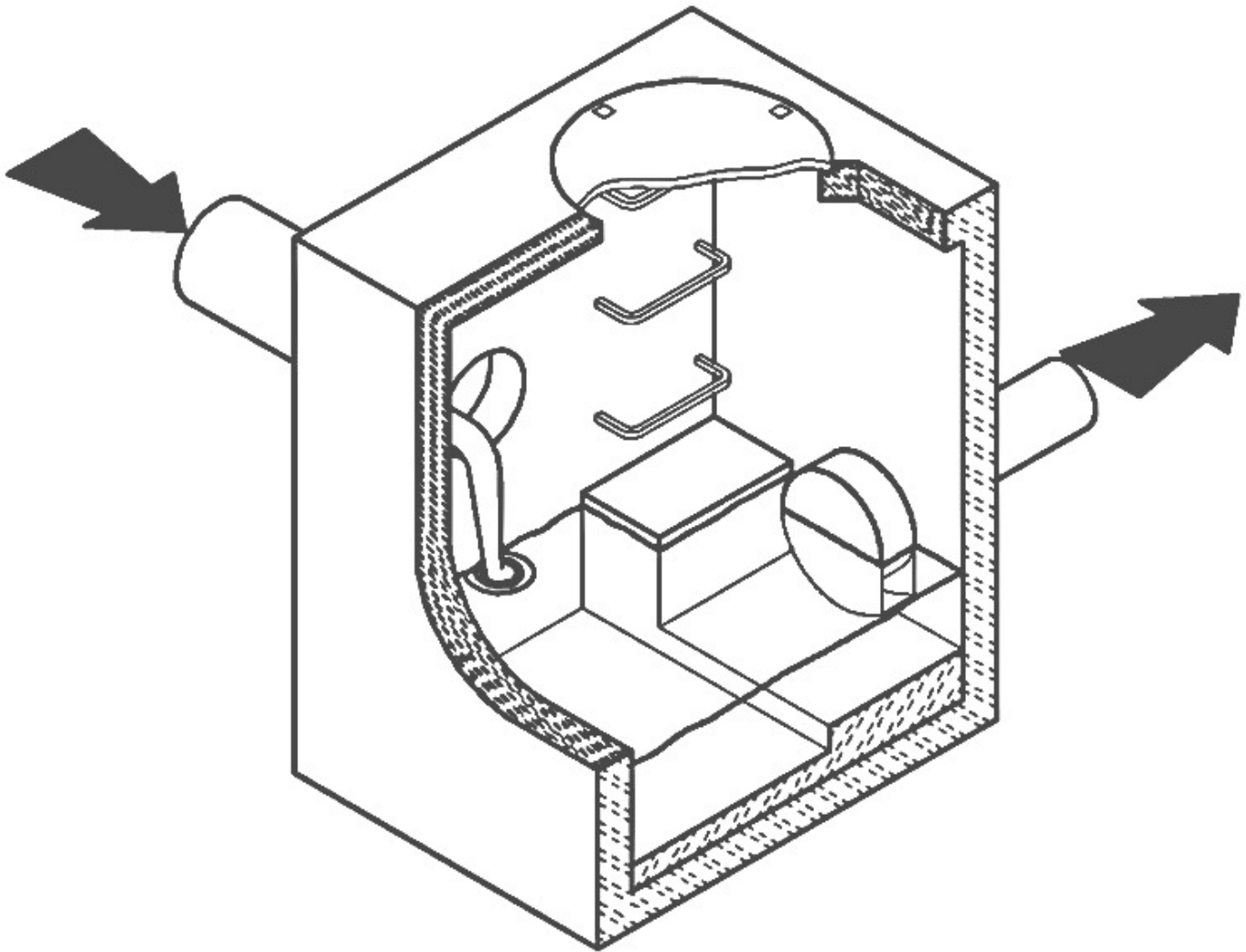
The internal components are made of high quality aluminum that have excellent mechanical properties and superior corrosion resistance.

<sup>1</sup>Canadian Environmental Technology Verification Program; <sup>2</sup>According to the most recent ETV protocol « *Light Liquid Retention Simulation Test* » (CETV 2018-09-0001).

**NEXT Stormwater Solutions ■ T: 647 278-7339 ■ [info@nextstorm.ca](mailto:info@nextstorm.ca) ■ [www.nextstorm.ca](http://www.nextstorm.ca)**



## <sup>®</sup> HYDROVEX<sup>®</sup> VHV / SVHV Vertical Vortex Flow Regulator



**JOHN MEUNIER**

# HYDROVEX® VHV / SVHV VERTICAL VORTEX FLOW REGULATOR

## APPLICATIONS

One of the major problems of urban wet weather flow management is the runoff generated after a heavy rainfall. During a storm, uncontrolled flows may overload the drainage system and cause flooding. Due to increased velocities, sewer pipe wear is increased dramatically and results in network deterioration. In a combined sewer system, the wastewater treatment plant may also experience significant increases in flows during storms, thereby losing its treatment efficiency.

A simple means of controlling excessive water runoff is by controlling excessive flows at their origin (manholes). **John Meunier Inc.** manufactures the **HYDROVEX® VHV / SVHV** line of vortex flow regulators to control stormwater flows in sewer networks, as well as manholes.

The vortex flow regulator design is based on the fluid mechanics principle of the forced vortex. This grants flow regulation without any moving parts, thus reducing maintenance. The operation of the regulator, depending on the upstream head and discharge, switches between orifice flow (gravity flow) and vortex flow. Although the concept is quite simple, over 12 years of research have been carried out in order to get a high performance.

The **HYDROVEX® VHV / SVHV** Vertical Vortex Flow Regulators (refer to **Figure 1**) are manufactured entirely of stainless steel, and consist of a hollow body (1) (in which flow control takes place) and an outlet orifice (7). Two rubber "O" rings (3) seal and retain the unit inside the outlet pipe. Two stainless steel retaining rings (4) are welded on the outlet sleeve to ensure that there is no shifting of the "O" rings during installation and use.

1. BODY

2. SLEEVE

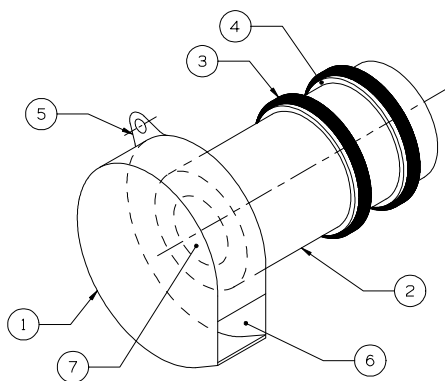
3. O-RING

4. RETAINING RINGS  
(SQUARE BAR)

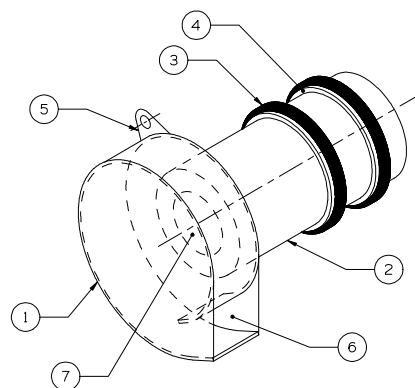
5. ANCHOR PLATE

6. INLET

7. OUTLET ORIFICE



VHV

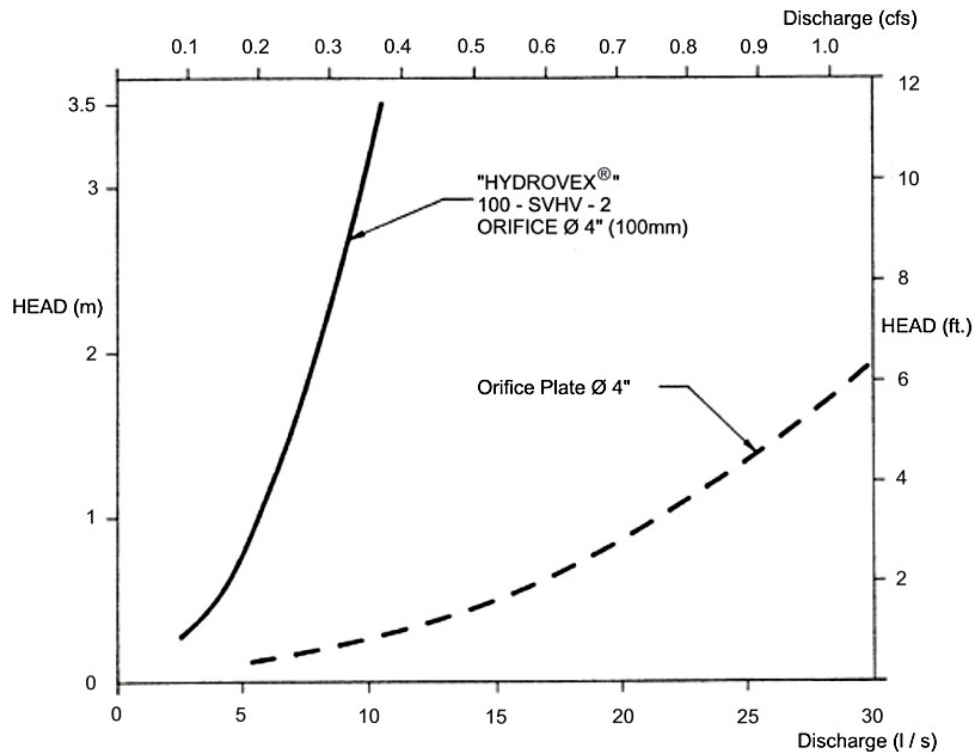


SVHV

**FIGURE 1: HYDROVEX® VHV-SVHV VERTICAL VORTEX FLOW REGULATORS**

## ADVANTAGES

- The **HYDROVEX® VHV / SVHV** line of flow regulators are manufactured entirely of stainless steel, making them durable and corrosion resistant.
- Having no moving parts, they require minimal maintenance.
- The geometry of the **HYDROVEX® VHV / SVHV** flow regulators allows a control equal to an orifice plate, having a cross section area 4 to 6 times smaller. This decreases the chance of blockage of the regulator, due to sediments and debris found in stormwater flows. **Figure 2** illustrates the comparison between a regulator model 100 SVHV-2 and an equivalent orifice plate. One can see that for the same height of water, the regulator controls a flow approximately four times smaller than an equivalent orifice plate.
- Installation of the **HYDROVEX® VHV / SVHV** flow regulators is quick and straightforward and is performed after all civil works are completed.
- Installation requires no special tools or equipment and may be carried out by any contractor.
- Installation may be carried out in existing structures.



**FIGURE 2: DISCHARGE CURVE SHOWING A HYDROVEX® FLOW REGULATOR VS AN ORIFICE PLATE**

## SELECTION

Selection of a **VHV** or **SVHV** regulator can be easily made using the selection charts found at the back of this brochure (see **Figure 3**). These charts are a graphical representation of the maximum upstream water pressure (head) and the maximum discharge at the manhole outlet. The maximum design head is the difference between the maximum upstream water level and the invert of the outlet pipe. All selections should be verified by John Meunier Inc. personnel prior to fabrication.

### Example:

- ✓ Maximum design head      2m (6.56 ft.)
- ✓ Maximum discharge        6 L/s (0.2 cfs)
- ✓ Using **Figure 3** - VHV      model required is a **75 VHV-1**

## INSTALLATION REQUIREMENTS

All **HYDROVEX® VHV / SVHV** flow regulators can be installed in circular or square manholes. **Figure 4** gives the various minimum dimensions required for a given regulator. *It is imperative to respect the minimum clearances shown to ensure easy installation and proper functioning of the regulator.*

## SPECIFICATIONS

In order to specify a **HYDROVEX**<sup>®</sup> regulator, the following parameters must be defined:

- The model number (ex: 75-VHV-1)
- The diameter and type of outlet pipe (ex: 6" diam. SDR 35)
- The desired discharge (ex: 6 l/s or 0.21 CFS)
- The upstream head (ex: 2 m or 6.56 ft.) \*
- The manhole diameter (ex: 36" diam.)
- The minimum clearance "H" (ex: 10 inches)
- The material type (ex: 304 s/s, 11 Ga. standard)

\* *Upstream head is defined as the difference in elevation between the maximum upstream water level and the invert of the outlet pipe where the **HYDROVEX**<sup>®</sup> flow regulator is to be installed.*

***PLEASE NOTE THAT WHEN REQUESTING A PROPOSAL, WE SIMPLY REQUIRE THAT YOU PROVIDE US WITH THE FOLLOWING:***

- *project design flow rate*
- *pressure head*
- *chamber's outlet pipe diameter and type*



*Typical VHV model in factory*

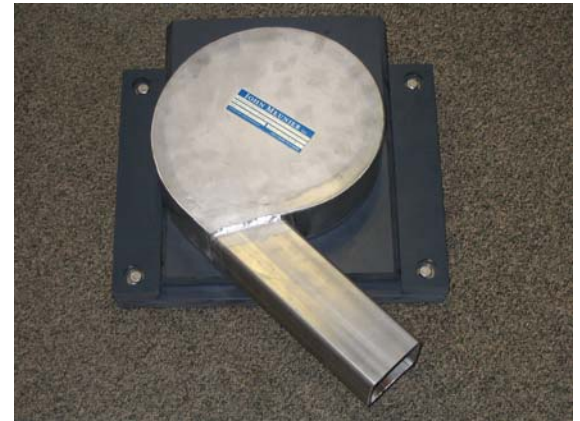
## OPTIONS



*VHV-1-O (standard model with odour control inlet)*



*FV – SVHV (mounted on sliding plate)*



*FV – VHV-O (mounted on sliding plate with odour control inlet)*



*VHV with Gooseneck assembly in existing chamber without minimum release at the bottom*



*VHV with air vent for minimal slopes*



## VHV Vertical Vortex Flow Regulator

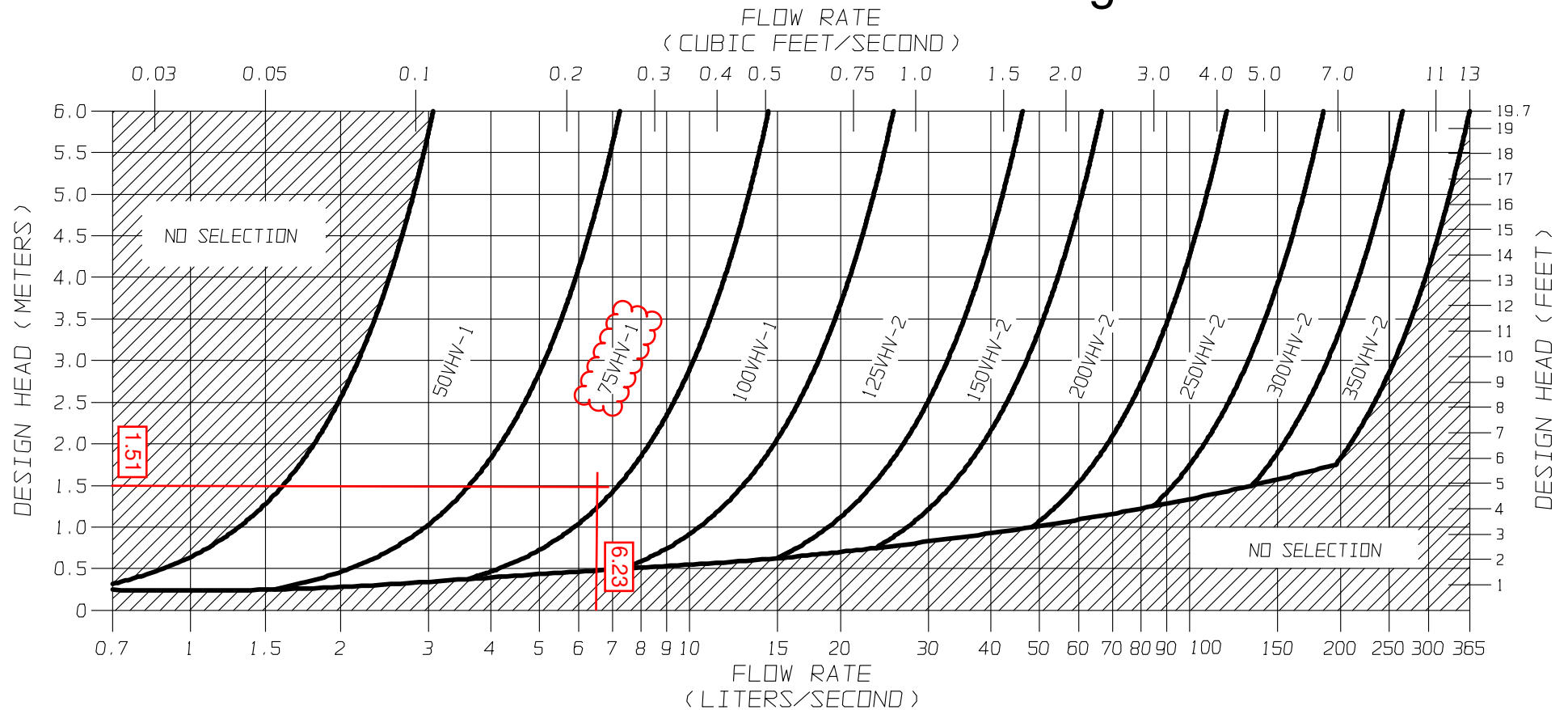
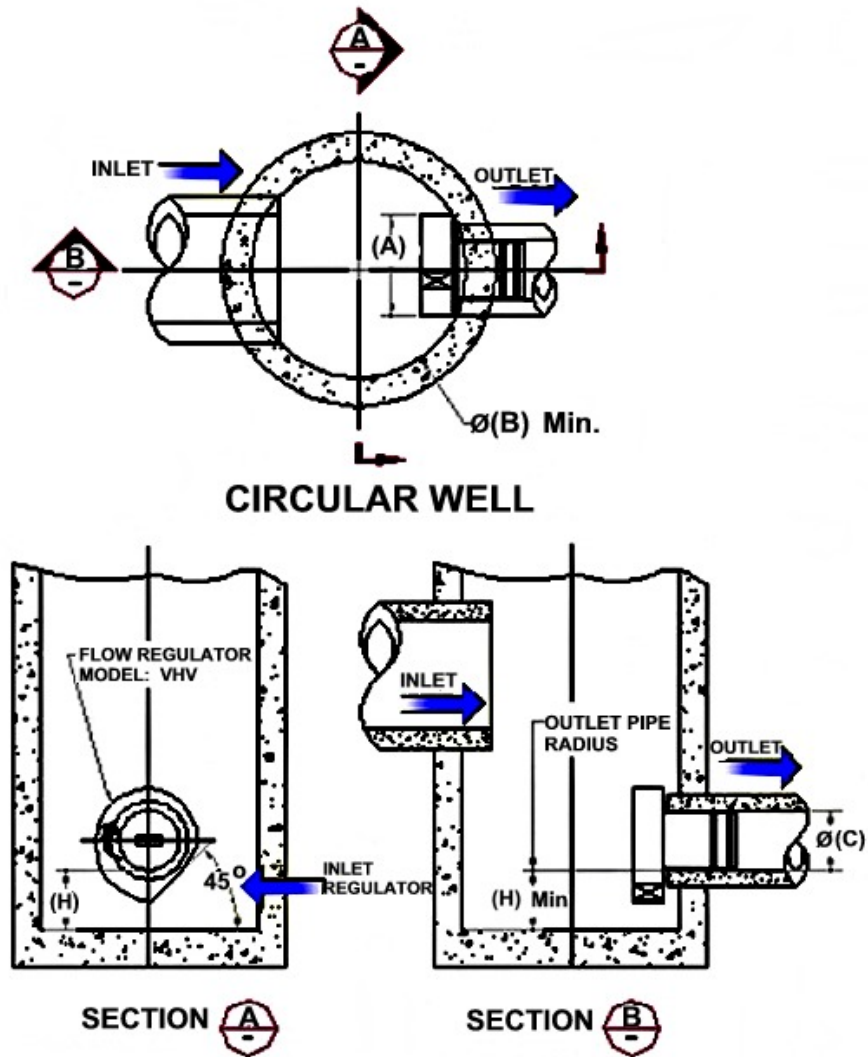


FIGURE 3 - VHV

**JOHN MEUNIER**

**FLOW REGULATOR TYPICAL INSTALLATION IN CIRCULAR MANHOLE**  
**FIGURE 4 (MODEL VHV)**

| Model Number | Regulator Diameter |         | Minimum Manhole Diameter |         | Minimum Outlet Pipe Diameter |         | Minimum Clearance |         |
|--------------|--------------------|---------|--------------------------|---------|------------------------------|---------|-------------------|---------|
|              | A (mm)             | A (in.) | B (mm)                   | B (in.) | C (mm)                       | C (in.) | H (mm)            | H (in.) |
| 50VHV-1      | 150                | 6       | 600                      | 24      | 150                          | 6       | 150               | 6       |
| 75VHV-1      | 250                | 10      | 600                      | 24      | 150                          | 6       | 150               | 6       |
| 100VHV-1     | 325                | 13      | 900                      | 36      | 150                          | 6       | 200               | 8       |
| 125VHV-2     | 275                | 11      | 900                      | 36      | 150                          | 6       | 200               | 8       |
| 150VHV-2     | 350                | 14      | 900                      | 36      | 150                          | 6       | 225               | 9       |
| 200VHV-2     | 450                | 18      | 1200                     | 48      | 200                          | 8       | 300               | 12      |
| 250VHV-2     | 575                | 23      | 1200                     | 48      | 250                          | 10      | 350               | 14      |
| 300VHV-2     | 675                | 27      | 1600                     | 64      | 250                          | 10      | 400               | 16      |
| 350VHV-2     | 800                | 32      | 1800                     | 72      | 300                          | 12      | 500               | 20      |



## INSTALLATION

The installation of a **HYDROVEX**<sup>®</sup> regulator may be undertaken once the manhole and piping is in place. Installation consists of simply fitting the regulator into the outlet pipe of the manhole. **John Meunier Inc.** recommends the use of a lubricant on the outlet pipe, in order to facilitate the insertion and orientation of the flow controller.

## MAINTENANCE

**HYDROVEX**<sup>®</sup> regulators are manufactured in such a way as to be maintenance free; however, a periodic inspection (every 3-6 months) is suggested in order to ensure that neither the inlet nor the outlet has become blocked with debris. The manhole should undergo periodically, particularly after major storms, inspection and cleaning as established by the municipality

## GUARANTY

The **HYDROVEX**<sup>®</sup> line of **VHV / SVHV** regulators are guaranteed against both design and manufacturing defects for a period of 5 years. Should a unit be defective, **John Meunier Inc.** is solely responsible for either modification or replacement of the unit.

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ISO 9001 : 2008

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Fax: 215-885-4741 [astele@johnmeunier.com](mailto:astele@johnmeunier.com)



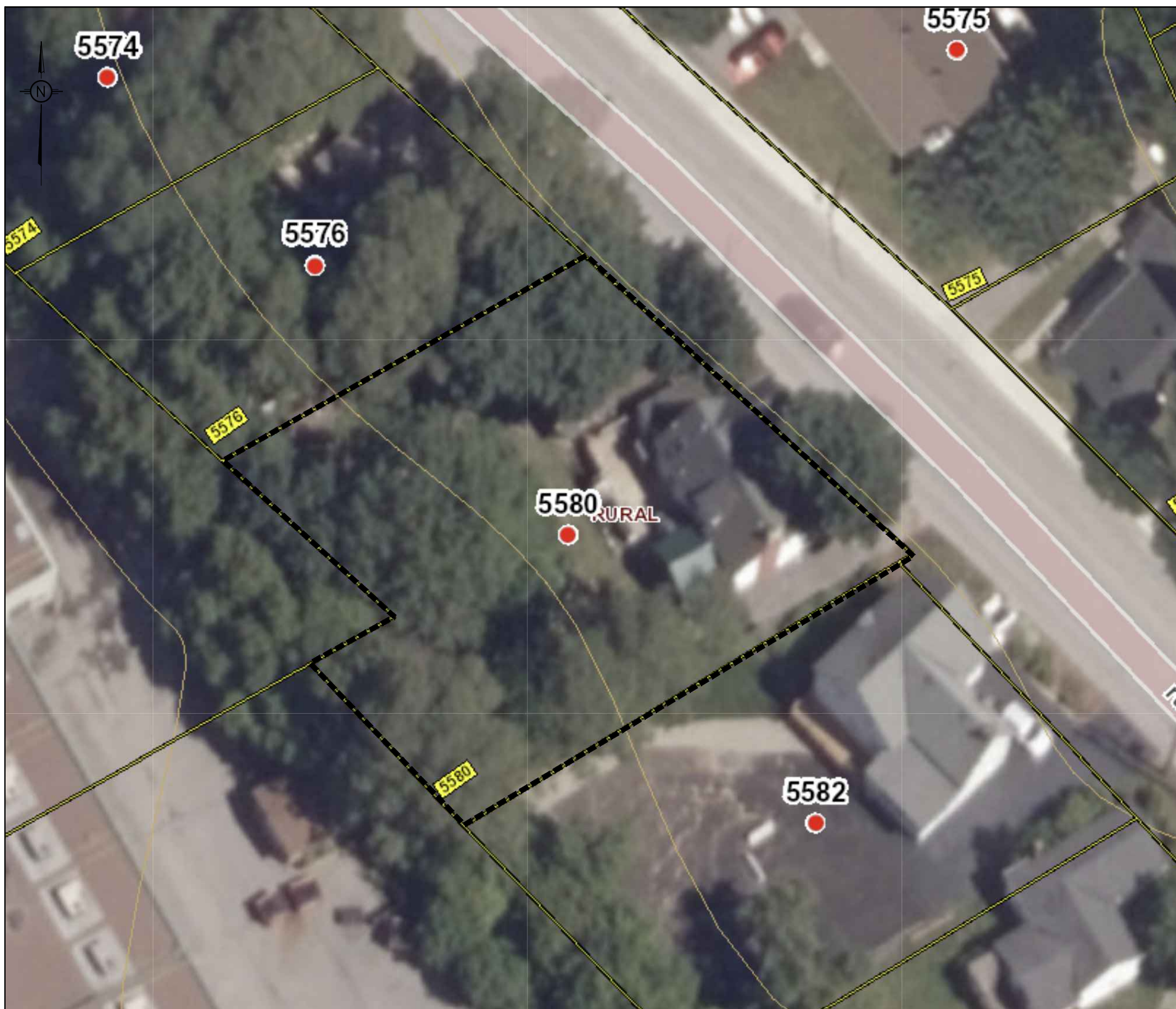
**APPENDIX E**  
**Civil Engineering Drawings**

# PROPOSED MULTI-USE BUILDING

## 5580 MANOTICK MAIN ST

### OTTAWA, ON

REVISION 04



KEY PLAN (N.T.S.)

| DRAWING INDEX                          |      |
|----------------------------------------|------|
| TITLE PAGE                             |      |
| GENERAL NOTES                          | C001 |
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| DEMOLITION PLAN                        | C102 |
| GRADING AND DRAINAGE PLAN              | C301 |
| SERVICING PLAN                         | C401 |
| STORM SEWER EXTENSION - PLAN & PROFILE | C501 |
| STORMWATER MANAGEMENT PLAN             | C601 |
| PRE-DEVELOPMENT WATERSHED PLAN         | C701 |
| POST-DEVELOPMENT WATERSHED PLAN        | C702 |
| CONSTRUCTION DETAIL PLAN               | C901 |



**LRL**

ENGINEERING | INGÉNIERIE

5430 Canotek Road | Ottawa, ON, K1J 9G2  
www.lrl.ca | (613) 842-3434

PROPOSED MULTI-USE BUILDING  
5580 MANOTICK MAIN STREET, OTTAWA, ON  
REV.04 - ISSUED FOR APPROVAL - JUL 8th, 2026  
LRL PROJECT no: 230464



NOT AUTHENTIC UNLESS SIGNED AND DATED

GENERAL NOTES

1. ALL WORKS MATERIALS SHALL CONFIRM TO THE LAST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTORS SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION , TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION, ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST THE DRAWINGS ARE TO BE PRICED IN SITE WORKS PORTION OF THE CONTRACT.
4. ANY AREA BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE. RELOCATING OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DETECTED BY THE ENGINEER AT THE EXPENSE OF DEVELOPERS.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 'OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS'. THE GENERAL CONTRACTORS SHALL BE DEEMED TO BE THE 'CONTRACTOR' AS DEFINED IN THE ACT.
6. ALL THE CONSTRUCTION SIGNAGE MUST CONFIRM TO THE MINISTRY OF TRANSPORTATION OF ONTARIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PER LATEST AMENDMENT.
7. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
8. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
9. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
10. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
11. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICES AND STORMWATER MANAGEMENT REPORT.
12. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
15. ALL PIPE/CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
16. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
17. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING/REMOVAL.
18. DRAWINGS SHALL BE READ ON CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
19. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ON SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
20. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM THEIR CONSTRUCTION OPERATIONS HAS POTENTIAL TO CAUSE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER, AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN MANNER THAT STRICTLY MEETS THE REQUIREMENT OF ALL APPLICABLE LEGISLATION AND REGULATIONS.

AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THEIR OPERATIONS, AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF ENTERING ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA.

THE CONTRACTOR ACKNOWLEDGES THAT NO ONE MEASURE IS LIKELY TO BE 100% EFFECTIVELY FOR EROSION PROTECTION AND CONTROLLING SEDIMENT RUNOFF AND DISCHARGES FROM THE SITE. THEREFORE, WHERE NECESSARY THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES ARRANGED IN SUCH MANNER AS TO MITIGATE DAMAGE FROM THE CONSTRUCTION OPERATIONS AND ACHIEVE SPECIFIC MAXIMUM PERMITTED CRITERIA WHERE APPLICABLE. SUGGESTED ON-SITE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING METHODS: SEDIMENT PONDS, FILTER BAGS, PUMP FILTERS, SETTLING TANKS, SILT FENCE, STRAW BALES, FILTER CLOTHS, CATCH BASIN FILTERS, CHECK DAMS AND/OR OTHER RECOGNIZED TECHNOLOGIES AND METHOD AVAILABLE AT THE TIME OF CONSTRUCTION. SPECIFIC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF OPSS 577 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY. AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIME WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY HIM AT THE MOMENT'S NOTICE.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR SIX COPIES OF A DETAILED EROSION AND SEDIMENT CONTROL PLAN (ESCP). THE ESCP WILL CONSIST OF WRITTEN DESCRIPTION AND DETAILED DRAWINGS INDICATING THE ON-SITE ACTIVITIES AND MEASURES TO BE USED TO CONTROL EROSION AND SEDIMENT MOVEMENT FOR EACH STEP OF THE WORK.

CONTRACTOR'S RESPONSIBILITIES

THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTOR, IN THE WORKING ARE ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES.

THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO THE SEWER WATERCOURSE AND AVOIDS DAMAGE TO CONTROL MEASURES. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH REQUIREMENTS FRO EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CONTRACT ADMINISTRATOR ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO EITHER THE WATERCOURSE OR THE STORM SEWER SYSTEM. FAILURE TO REPORT WILL BE CONSTITUTE A BRACH OF THIS SPECIFICATION AND THE CONTRACTOR MAY ALSO BE SUBJECT TO THE PENALTIES IMPOSED BY THE APPLICABLE REGULATORY AGENCY. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.

THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS THE ENTRY OF ANY EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, INTO ANY WATERCOURSE, AND PREVENTS THE RELEASE OF ANY SEDIMENT OR DEBRIS INTO ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WORKING AREA AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL.

WHERE, IN THE OPINION OF EITHER THE CONTRACT ADMINISTRATOR OR A REGULATORY AGENCY, ANY OF THE TERMS SPECIFIED HEREIN HAVE NOT BEEN COMPLIED WITH OR PERFORMED IN A SUITABLE MANNER, OR TAT ALL, THE CONTRACTOR ADMINISTRATOR OR A REGULATORY AGENCY HAS THE RIGHT TO IMMEDIATELY WITHDRAW ITS PERMISSION TO CONTINUE THE WORK BUT MAY RENEW ITS PERMISSION UPON BEING SATISFIED THAT THE DEFAULTS OR DEFICIENCIES IN THE PERFORMANCE OF THIS SPECIFICATION BY THE CONTRACTOR HAVE BEEN REMEDIED.

SPILL CONTROL NOTES

1. ALL CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED, MAINTAINED, AND STORED NO LESS THAN 30 METRES FROM WATERCOURSE, STREAMS, CREEKS, WOODLOTS, AND ANY ENVIRONMENTALLY SENSITIVE AREAS, OR AS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT.
3. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT, THE CONTRACTOR SHALL:
  - 3.1. IMMEDIATELY NOTIFY APPROPRIATE FEDERAL, PROVINCIAL, AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES, AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS, ETC.
  - 3.2. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES TO MITIGATE AGAINST ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT.
  - 3.3. RESTORE THE AFFECTED AREA TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.

MUD MAT NOTES

1. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.
2. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY.
3. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADS BY SHOVELING OR SWEEPING AND DISPOSED OR PROPERLY IN A CONTROLLED SEDIMENT DISPOSAL AREA.

SITE GRADING NOTES

1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER EROSION CONTROL PLAN.
2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. SC1-1 PROVISION SHALL BE MADE OR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1-4. ALL CURBS, CONCRETE ISLANDS, AND CURBS SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER.
5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010 AND OPSS 310.
6. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 30MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 30MM LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR BACKFILLING.
9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF REQUIRED BY THE MUNICIPALITY.
10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT PAINT.
11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
13. SIDEWALKS TO BE 13MM & BEVELED AT 2:1 OR 6MM WITH NO BEVEL REQUIRED BELOW THE FINISHED FLOOR SLAB ELEVATION AT ENTRANCES REQUIRED TO BE BARRIER-FREE, UNLESS OTHERWISE NOTED. ALL IN ACCORDANCE WITH OBC 3.8.1.3 & OTTAWA ACCESSIBILITY DESIGN STANDARDS.
14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

ROADWORK SPECIFICATIONS

15. ROADWORK TO BE COMPLETED IN ACCORDANCE WITH GEOTECHNICAL REPORT, PREPARED BY LRL ASSOCIATES. DATED MAY 2024.
16. AL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND STOCK PILLED ON SITE AS DIRECTED BY NATIONAL MUNICIPALITY.
17. THE SUBGRADE SHALL BE CROWNED AND SLOPED AT LEAST 2% AND PROOF ROLLED WITH HEAVY ROLLERS.
18. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'A', TYPE II COMPACTED IN MAXIMUM 300MM LIFTS.
19. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO MINIMUM OF 100% STANDARD PROCTOR DENSITY MAXIMUM DRY DENSITY (SPMDD).
20. CONCRETE RAMP ON TACTILE WALKING SURFACE INDICATORS COMPONENT AS PER OPSD 310.039. TACTILE WALKING SURFACE INDICATORS TO BE INSTALLED AT ALL RAMP'S. MATERIAL TO BE POLYMER COMPOSITE, COLOR GREY.

SANITARY, FOUNDATION DRAIN, STORM SEWER AND WATERMAIN NOTES

GENERAL

1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
2. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING S8. THE SEALS SHOULD BE AT LEAST 1.5M LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPATIBLE BROWN SILTY CLAY PLACED IN MAXIMUM 225MM LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT 60M INTERVALS IN THE SERVICE TRENCHES.
3. SERVICES TO BUILDING TO BE TERMINATED 1.0M FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
4. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY. A MINIMUM OF 300MM AROUND STRUCTURES.
5. "MODULOC" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
6. SAFETY PLATFORMS SHALL BE PER OPSD 404.02.
7. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01, IF APPLICABLE.
8. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDING IN A FORMAT ACCEPTABLE TO ENGINEER. ALL SEWER ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.
9. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT.

SANITARY

10. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
11. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, iPEX 'RING-TITE' (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST AMENDMENT, UNLESS SPECIFIED OTHERWISE.
12. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
13. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' BEDDING, UNLESS SPECIFIED OTHERWISE.
14. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.
15. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHED PER OPSD 701.021.
16. 100MM THICK HIGH-DENSITY GRADE 'A' POLYSTYRENE INSULATION TO BE INSTALLED IN ACCORDANCE WITH CITY STD W22 WHERE INDICATED ON DRAWING SSP-1.

STORM

17. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2, OR LATEST AMENDMENT. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER GASKETS AS PER CSA A257.3, OR LATEST AMENDMENT.
18. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
19. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
20. CATCH BASIN SHALL BE IN ACCORDANCE WITH OPSD 705.010.
21. CATCH BASIN LEADS SHALL BE IN 200MM DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
22. ALL CATCH BASINS SHALL HAVE 600MM SUMPS, UNLESS SPECIFIED OTHERWISE.
23. ALL CATCH BASIN LEAD INVERTS TO BE 1.5M BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
24. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR IS REQUIRED TO PROVIDE AND SHALL BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
25. ALL ROAD AND PARKING LOT CATCH BASINS TO BE INSTALLED WITH ORTHOGONALLY PLACED SUBDRAINS IN ACCORDANCE WITH DETAIL. PERFORATED SUBDRAIN FOR ROAD AND PARKING LOT CATCH BASIN SHALL BE INSTALLED PER CITY STD R1. UNLESS OTHERWISE NOTED.
26. PERFORATED SUBDRAIN FOR REAR YARD AND LANDSCAPING APPLICATIONS SHALL BE INSTALLED PER CITY STD S29, S30 AND S31, WHERE APPLICABLE.
27. RIP-RAP TREATMENT SEWER AND CULVERT OUTLETS PER OPSD 810.010.
28. ALL STORM SEWER/ CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE.
29. ALL STORM MAN-HOLES WITH PIPE LESS THAN 900MM IN DIAMETER SHALL BE CONSTRUCTED WITH A 300MM SUMP AS PER SDG, CLAUSE 6.2.6.

WATERMAIN

30. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
31. ALL PVC WATERMAINS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
32. ALL WATER SERVICES LESS THAN OR EQUAL TO 50MM IN DIAMETER TO BE TYPE 'K' COPPER.
33. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17. UNLESS SPECIFIED OTHERWISE. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
34. ALL PVC WATERMAINS, SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W.36.
35. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD.25.5 AND W25.6.
36. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.
37. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6.
38. THRUST BLOCKING OF WATERMAINS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
39. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
40. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25.2 AND W25. RESPECTIVELY.
41. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4M.
42. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.5M PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING TO ENSURE THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.
43. ALL WATERMAINS SHALL HAVE A MINIMUM COVER OR 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.
44. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
45. FIRE HYDRANT INSTALLATION AS PER STD DWG W19. ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10M ABOVE PROPOSED FINISHED GRADE AT HYDRANT. FIRE HYDRANT LOCATION AS PER STD DWG W18.
46. BUILDING SERVICE TO BE CAPPED 1.0M OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12M BACK FROM STUB.
47. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
48. ALL WATERMAINS SHALL BE EXTERIOR LOCALLY TEST WITH THE ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL CHLORINATED WATER TO BE DISCHARGED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
49. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50MM BLOW OFF UNLESS OTHERWISE NOTED.

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CAD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE BOUND AS IF REQUIRED BY ALL. WORK NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS ISSUED FOR CONSTRUCTION, THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SOLUTIONS, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COSTS, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

|     |                     |      |             |
|-----|---------------------|------|-------------|
| 04  | ISSUED FOR APPROVAL | M.L. | 08 JUL 2026 |
| 03  | ISSUED FOR APPROVAL | M.L. | 12 NOV 2025 |
| 02  | ISSUED FOR APPROVAL | M.L. | 17 JUL 2025 |
| 01  | ISSUED FOR APPROVAL | M.L. | 17 JAN 2025 |
| No. | REVISIONS           | BY   | DATE        |



NOT AUTHENTIC UNLESS SIGNED AND DATED

**ENGINEERING | INGÉNIERIE**  
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CLIENT

ABDULLA REAL ESTATE HOLDINGS INC.

DESIGNED BY: M.L.

DRAWN BY: M.L.

APPROVED BY: M.B.

PROJECT

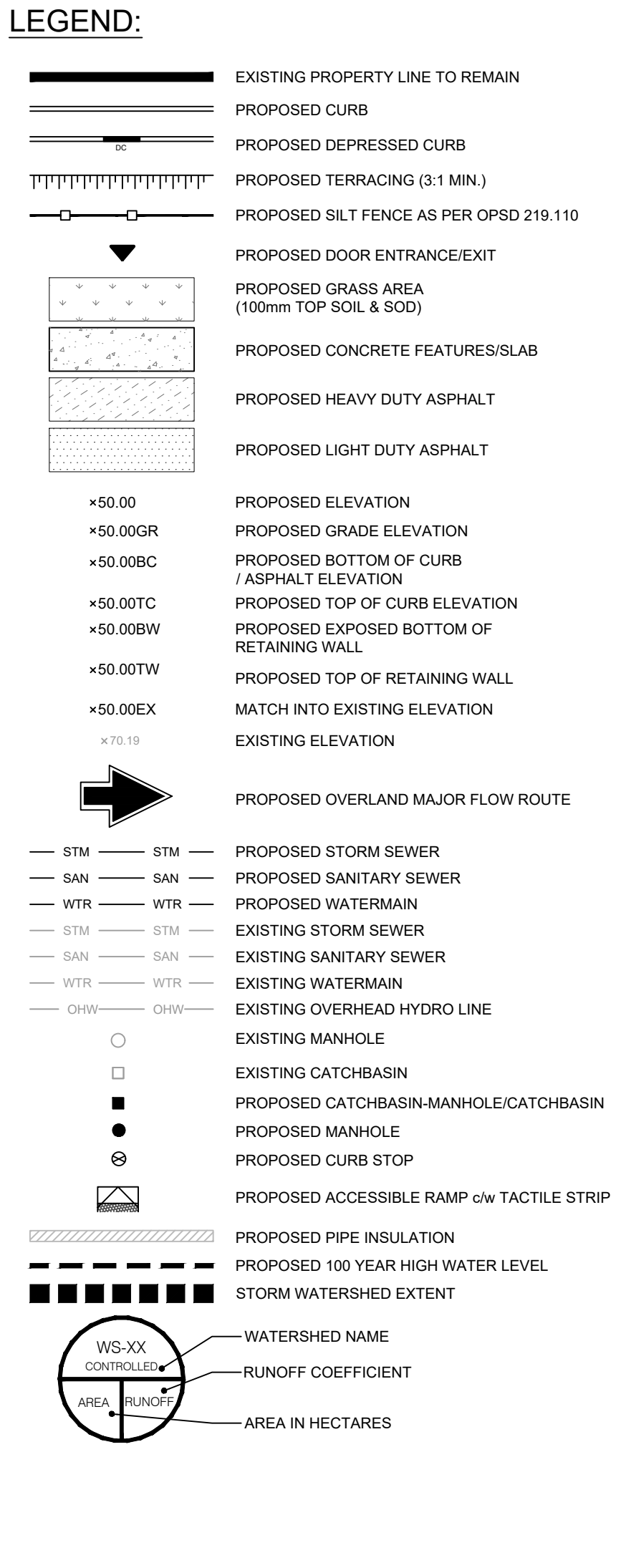
PROPOSED MULTI-USE BUILDING  
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OTTAWA, ON

DRAWING TITLE

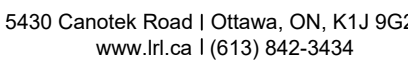
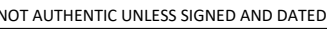
GENERAL NOTES

PROJECT NO.

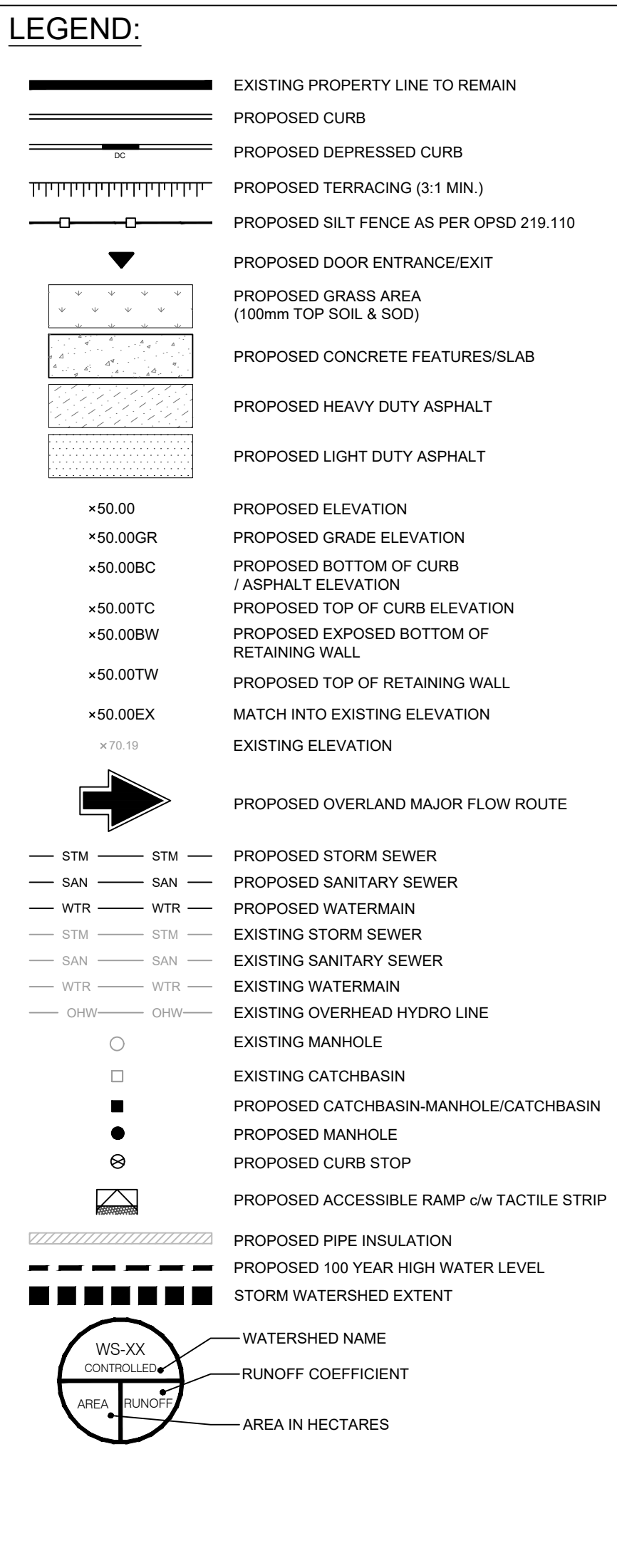
230464 C001



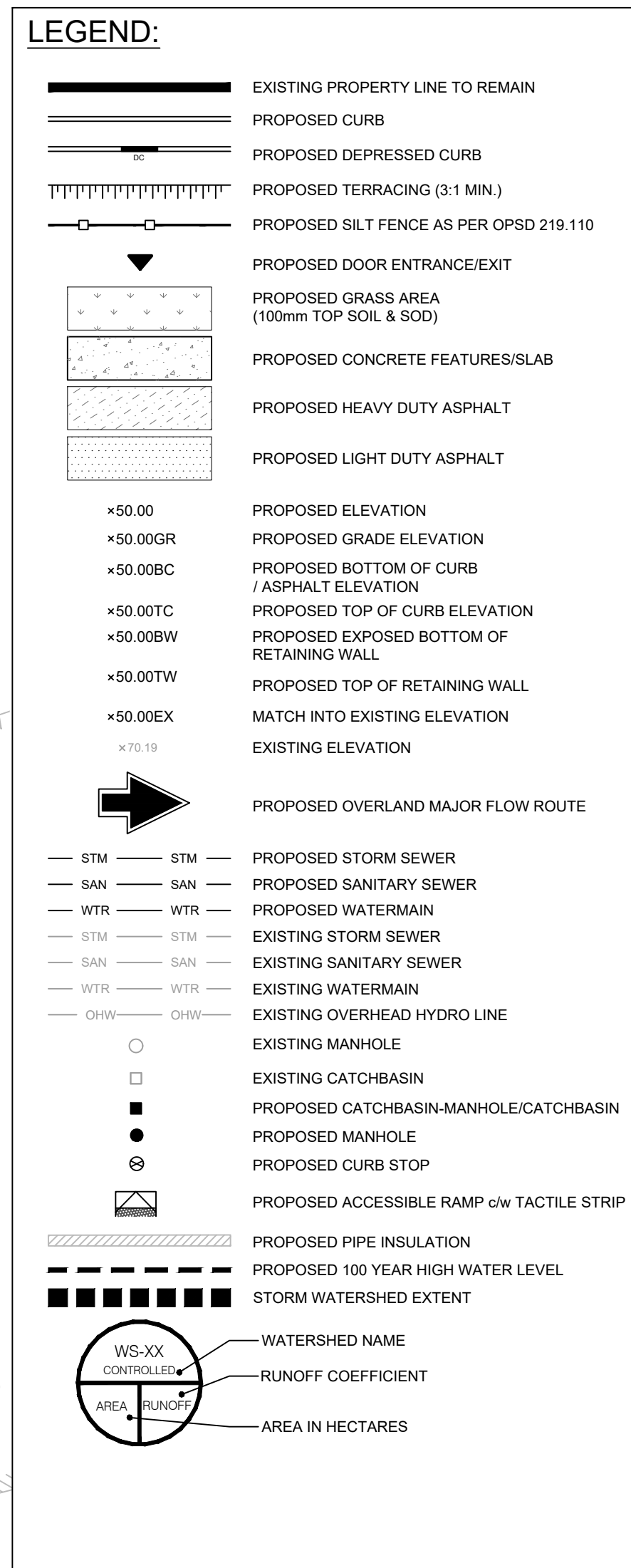
| No. | REVISIONS | BY | DATE |
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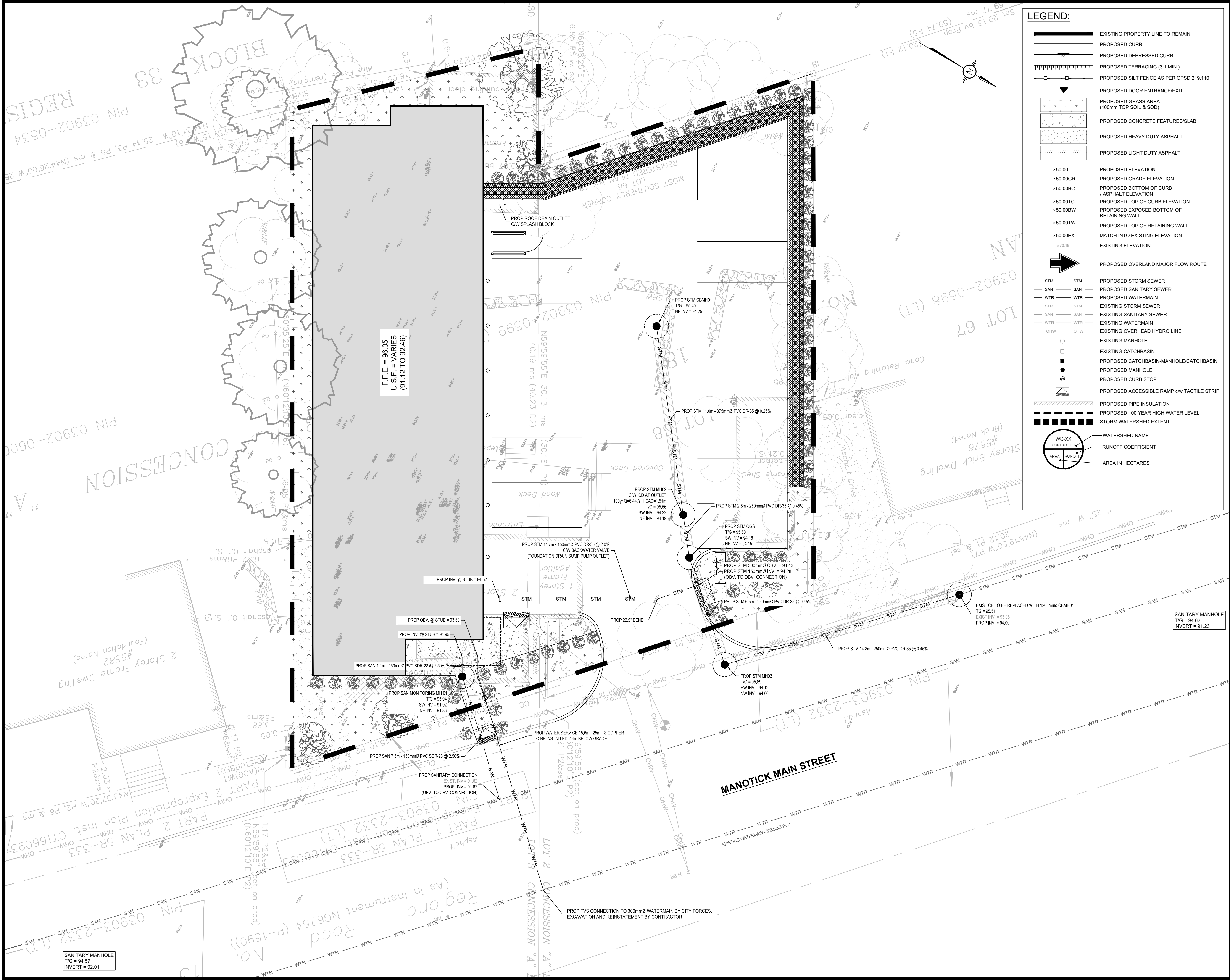
# C101



# C102



| <u>PAVEMENT STRUCTURE</u> |                           |                    |                             |
|---------------------------|---------------------------|--------------------|-----------------------------|
| COURSE                    | MATERIAL                  | THICKNESS (mm)     |                             |
|                           |                           | AUTOMOBILE PARKING | TRUCK ROUTE (HEAVY TRAFFIC) |
| SURFACE                   | HL-3 A/C (PG 58-34)       | 50                 | 40                          |
| BINDER                    | HL-8 A/C (PG 58-34)       | --                 | 50                          |
| BASECOURSE                | OPSS GRANULAR "A"         | 150                | 150                         |
| SUBBASE                   | OPSS GRANULAR "B" TYPE II | 300                | 450                         |



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- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED ELEVATION
- PROPOSED GRADE ELEVATION
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- PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- PROPOSED TOP OF RETAINING WALL
- MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING OVERHEAD HYDRO LINE
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
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- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- Watershed Name
- Runoff Coefficient
- Area in Hectares

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|    |                     |      |             |
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|     |           |    |      |

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ENGINEERING | INGENIERIE  
5430 Canotek Road | Ottawa, ON, K1J 9G2  
www.lrl.ca | (613) 842-3434

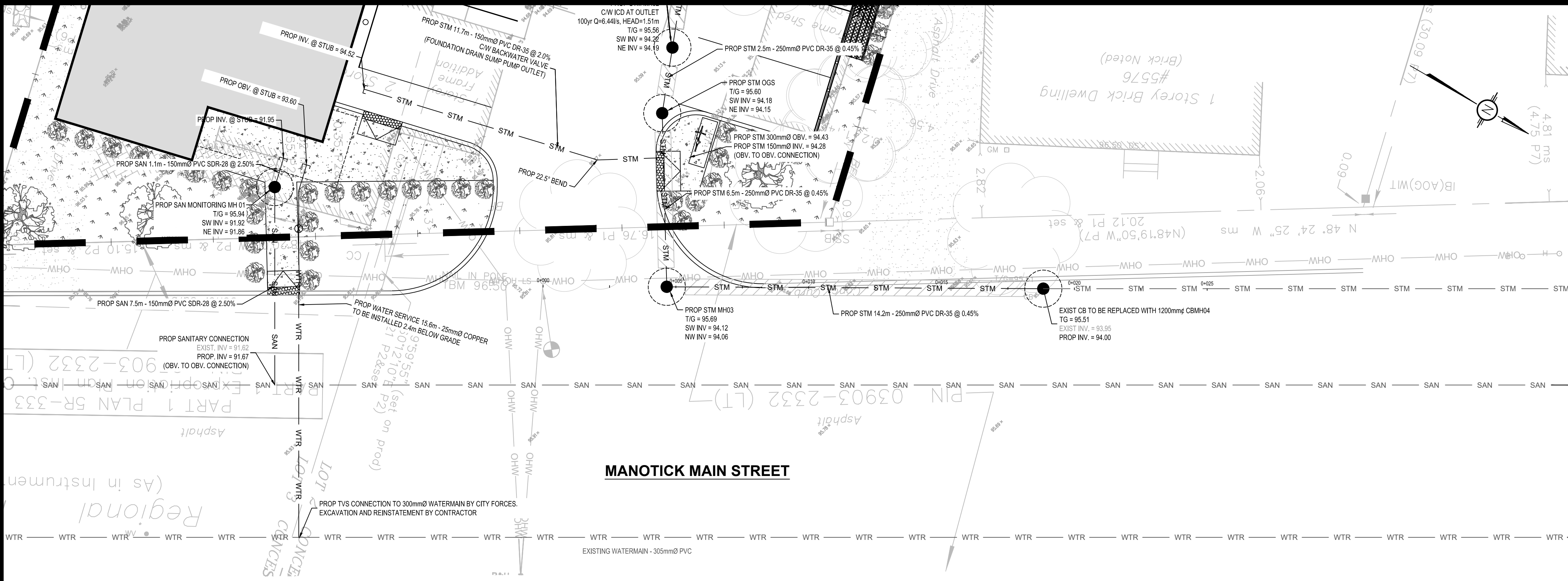
CLIENT  
**ABDULLA REAL ESTATE HOLDINGS INC.**

DESIGNED BY: M.L. DRAWN BY: M.L. APPROVED BY: M.B.

PROJECT  
**PROPOSED MULTI-USE BUILDING  
5580 MANOTICK MAIN ST  
OTTAWA, ON**

DRAWING TITLE  
**SERVICING PLAN**

PROJECT NO.  
**230464 C401**

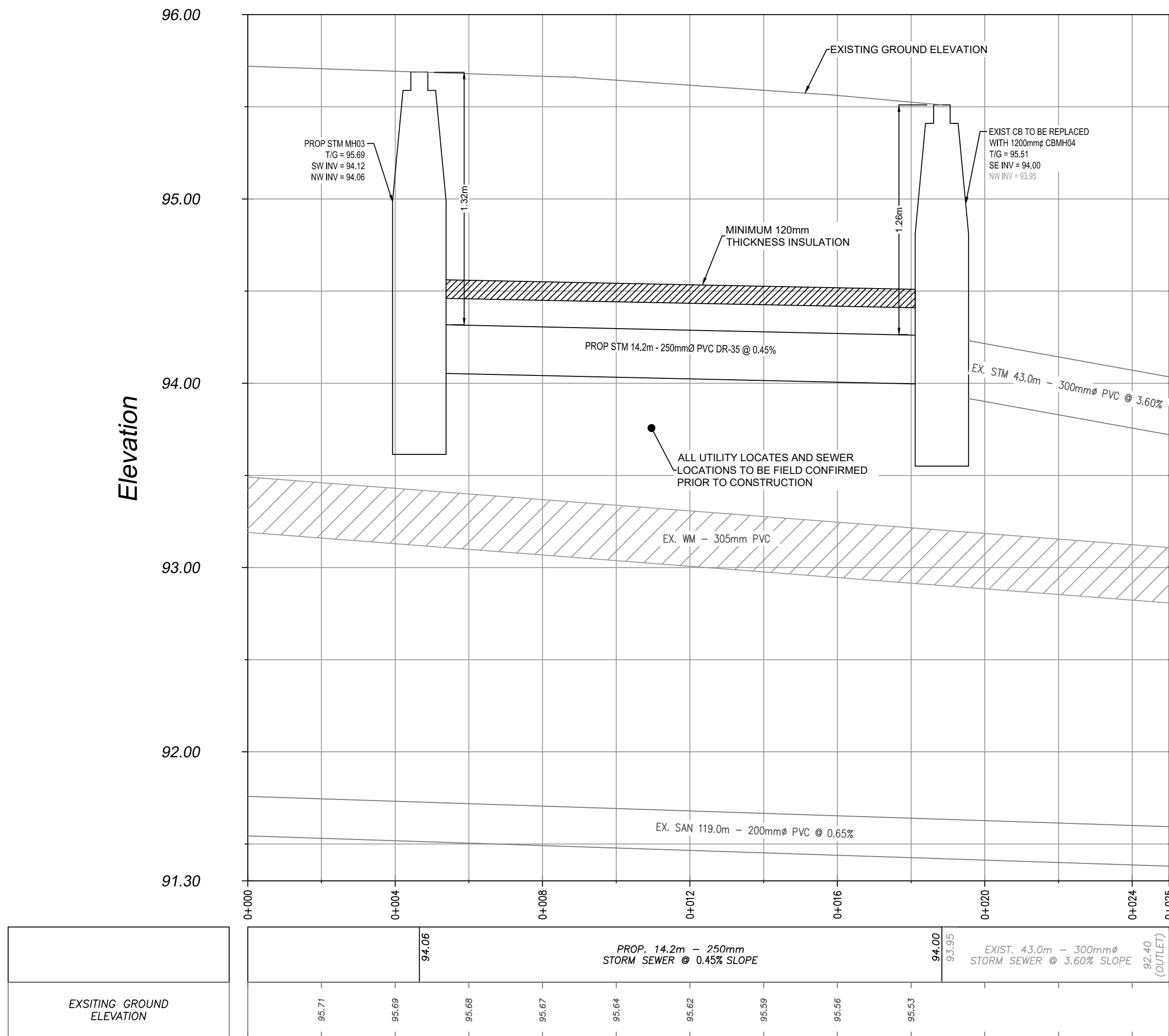


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- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- Watershed Name: WS-XX
- Runoff Coefficient: AREA
- Area in Hectares: RUNOFF

### MANOTICK MAIN STREET

### MANOTICK MAIN STREET - STORM EXTENSION



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ENGINEERING | INGENIERIE

5430 Canotek Road | Ottawa, ON, K1J 9G2  
www.lrl.ca | (613) 842-3434

CLIENT

ABDULLA REAL ESTATE HOLDINGS INC.

| DESIGNED BY: | DRAWN BY: | APPROVED BY: |
|--------------|-----------|--------------|
| M.L.         | M.L.      | M.B.         |

PROJECT

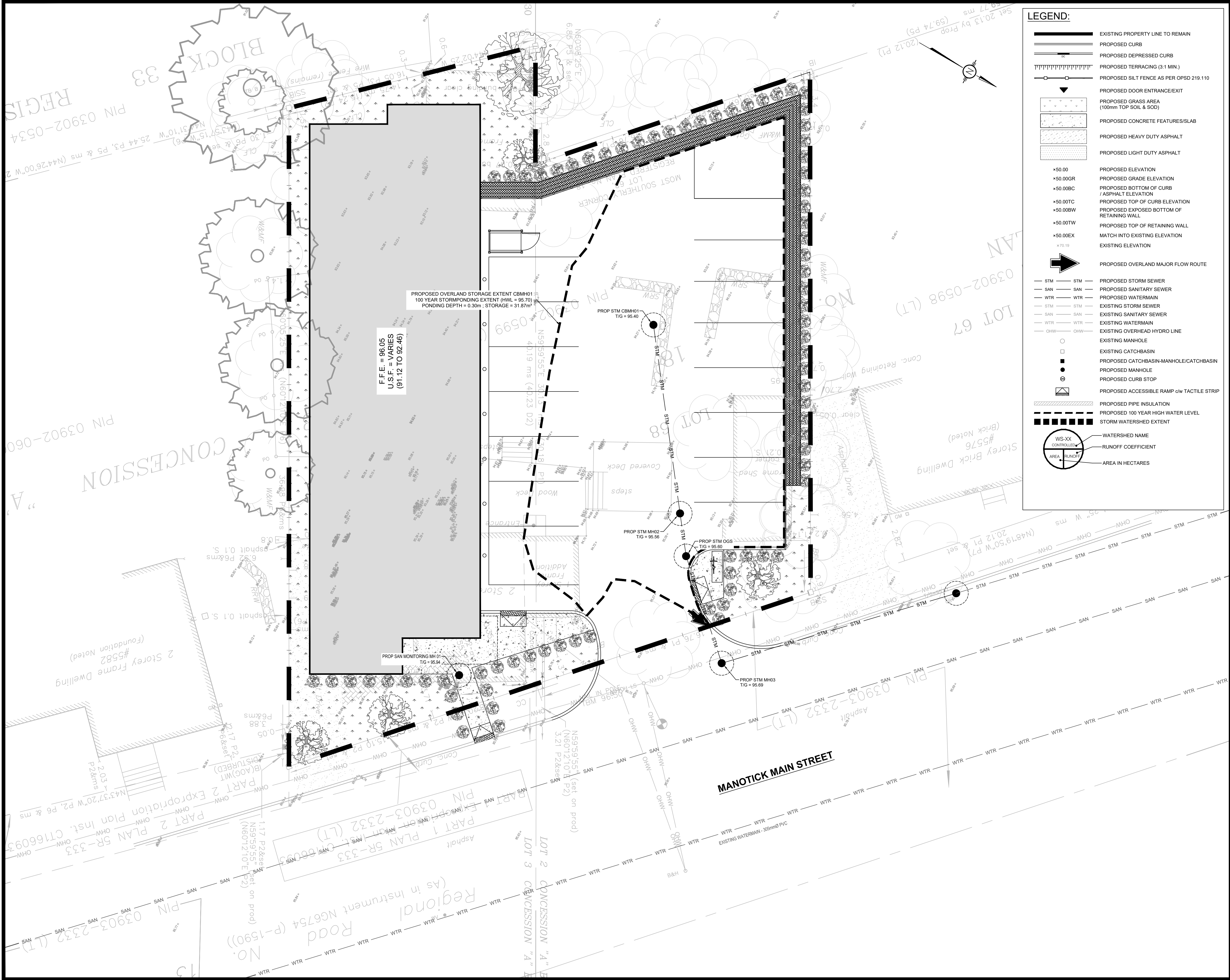
PROPOSED MULTI-USE BUILDING  
5580 MANOTICK MAIN ST  
OTTAWA, ON

DRAWING TITLE

STORM SEWER EXTENSION -  
PLAN & PROFILE

PROJECT NO.

230464 C501



**LEGEND:**

EXISTING PROPERTY LINE TO REMAIN

PROPOSED CURB

PROPOSED DEPRESSED CURB

PROPOSED TERRACING (3:1 MIN.)

PROPOSED SILT FENCE AS PER OPSD 219.110

PROPOSED DOOR ENTRANCE/EXIST

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PROPOSED PIPE INSULATION

PROPOSED 100 YEAR HIGH WATER LEVEL

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WS-XX  
CONTROLLED  
AREA  
RUNOFF  
AREA IN HECTARES

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SCALE: 1:100

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ENGINEERING | INGÉNIERIE

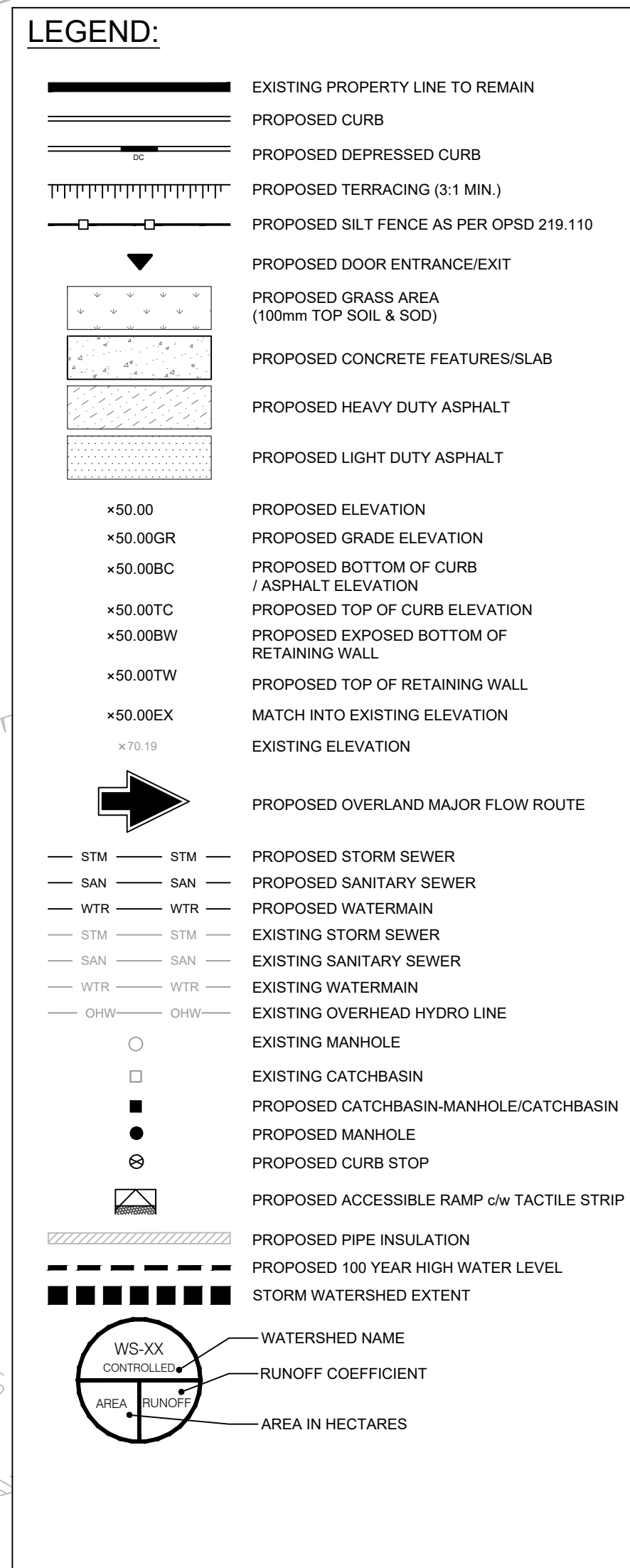
5430 Canotek Road | Ottawa, ON, K1J 9G2

www.lrl.ca | (613) 842-3434

|                                   |           |              |
|-----------------------------------|-----------|--------------|
| CLIENT                            |           |              |
| ABDULLA REAL ESTATE HOLDINGS INC. |           |              |
| DESIGNED BY:                      | DRAWN BY: | APPROVED BY: |
| M.L.                              | M.L.      | M.B.         |
| PROJECT                           |           |              |
| PROPOSED MULTI-USE BUILDING       |           |              |
| 5580 MANOTICK MAIN ST             |           |              |
| OTTAWA, ON                        |           |              |

|                            |      |
|----------------------------|------|
| DRAWING TITLE              |      |
| STORMWATER MANAGEMENT PLAN |      |
| PROJECT NO.                |      |
| 230464                     | C601 |





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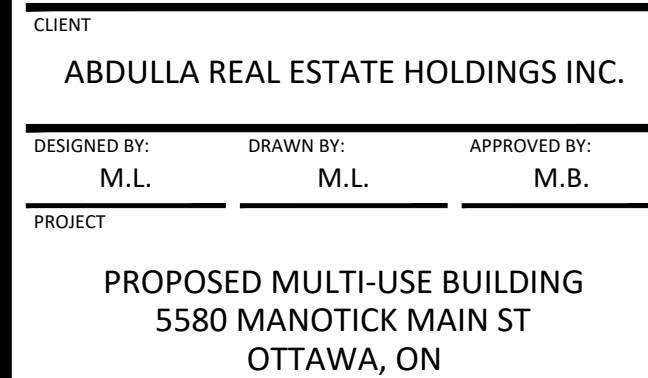
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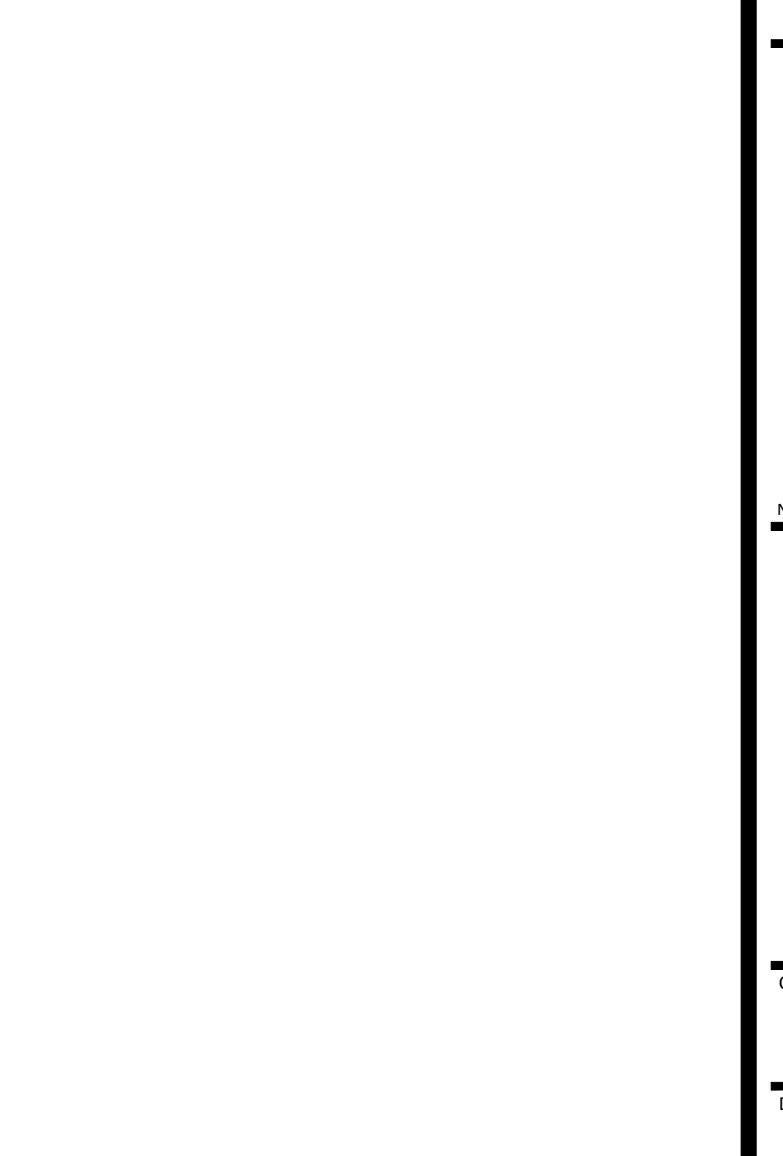
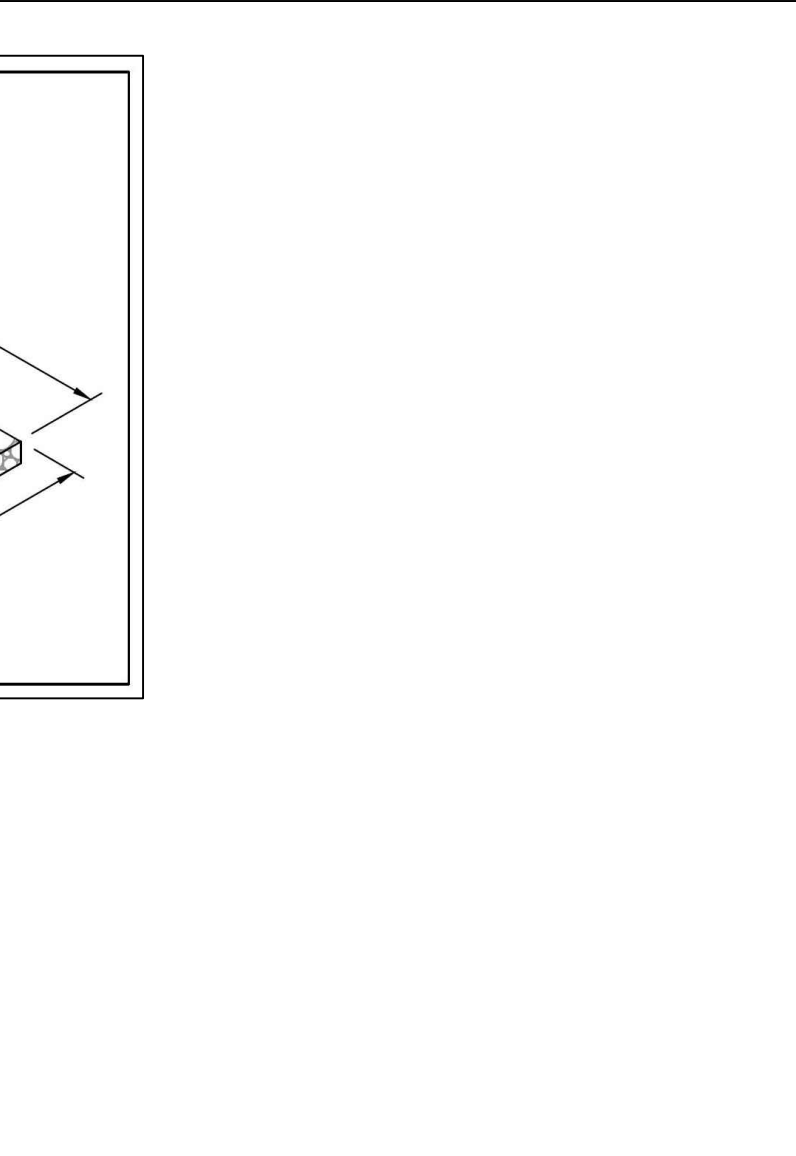
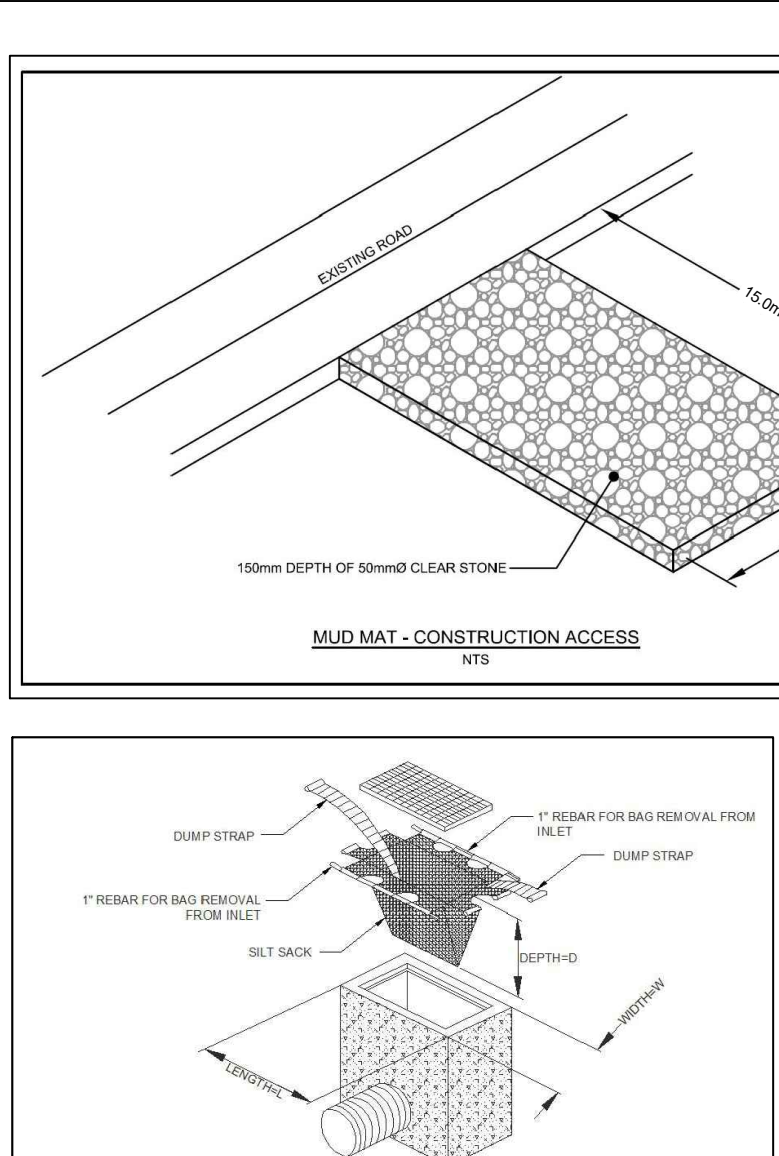
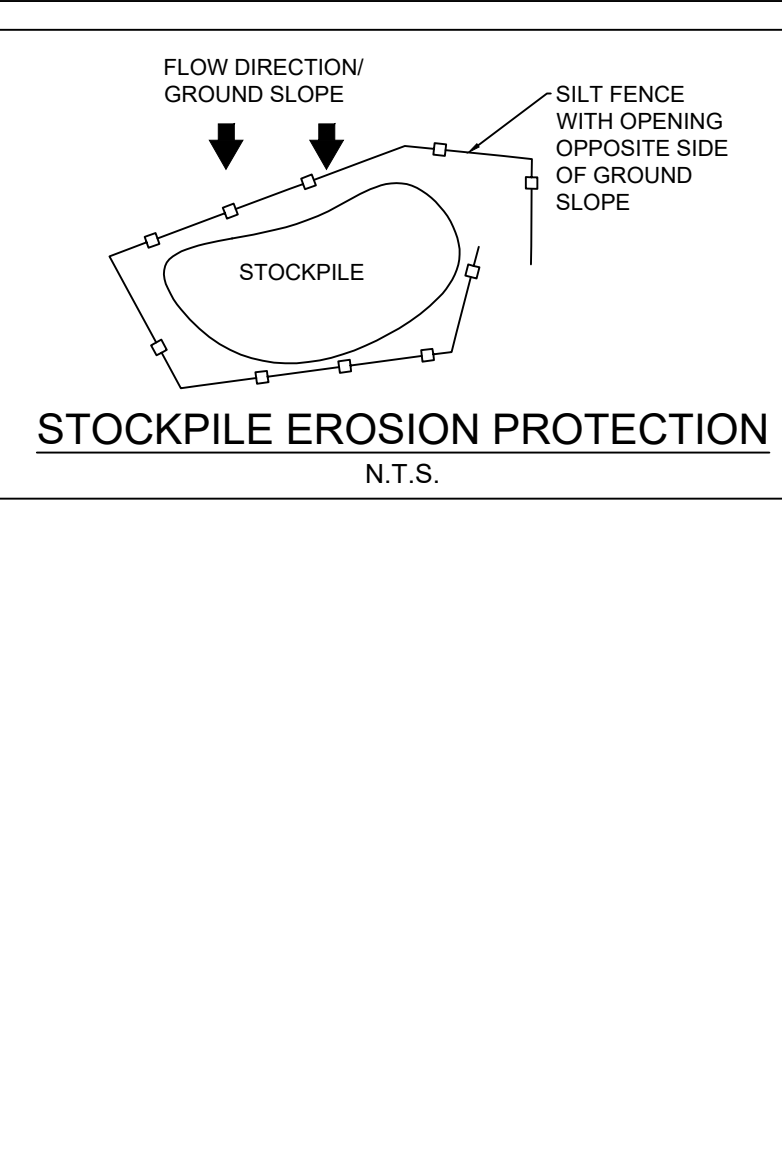
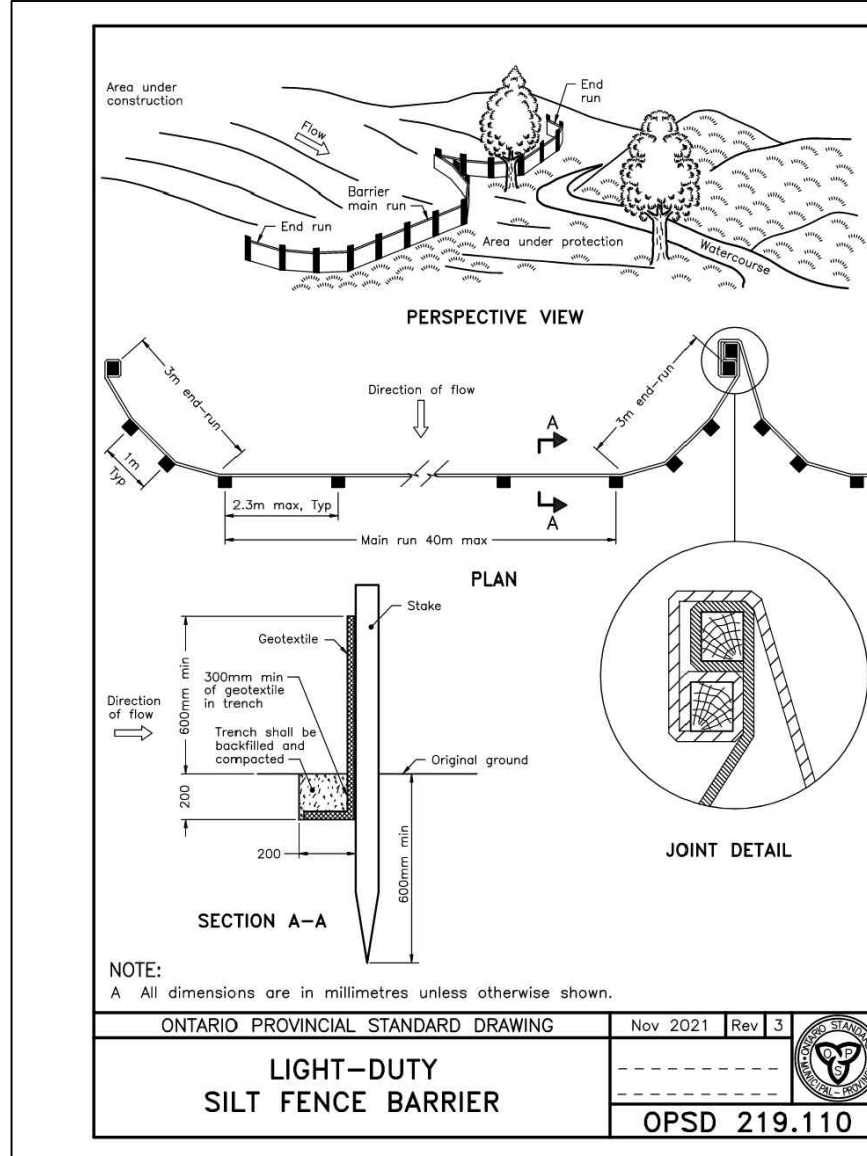
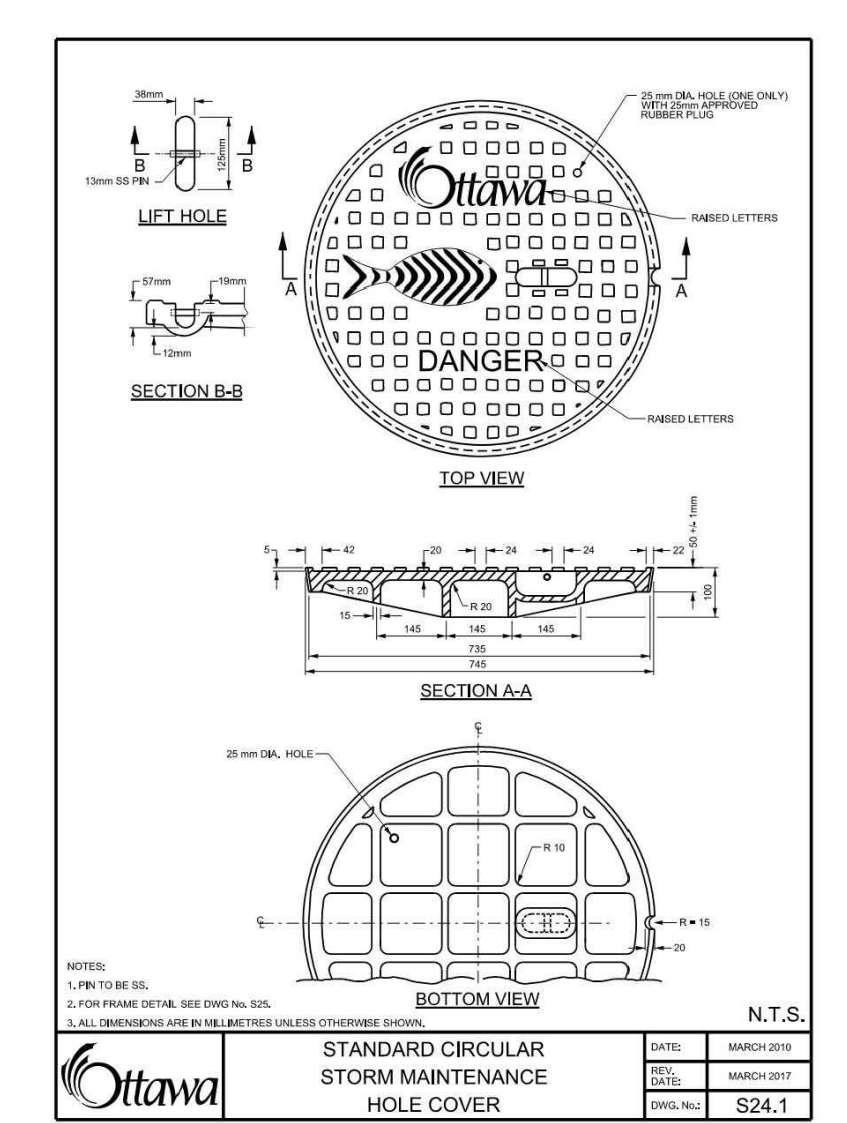
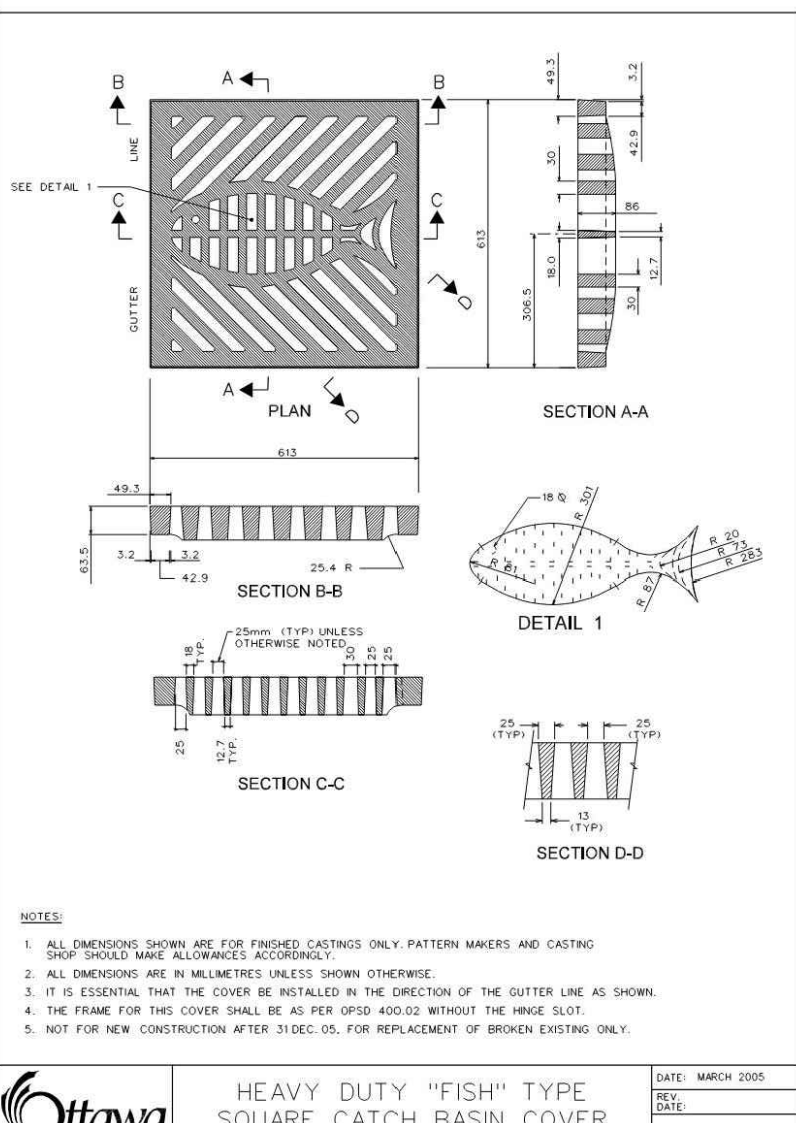
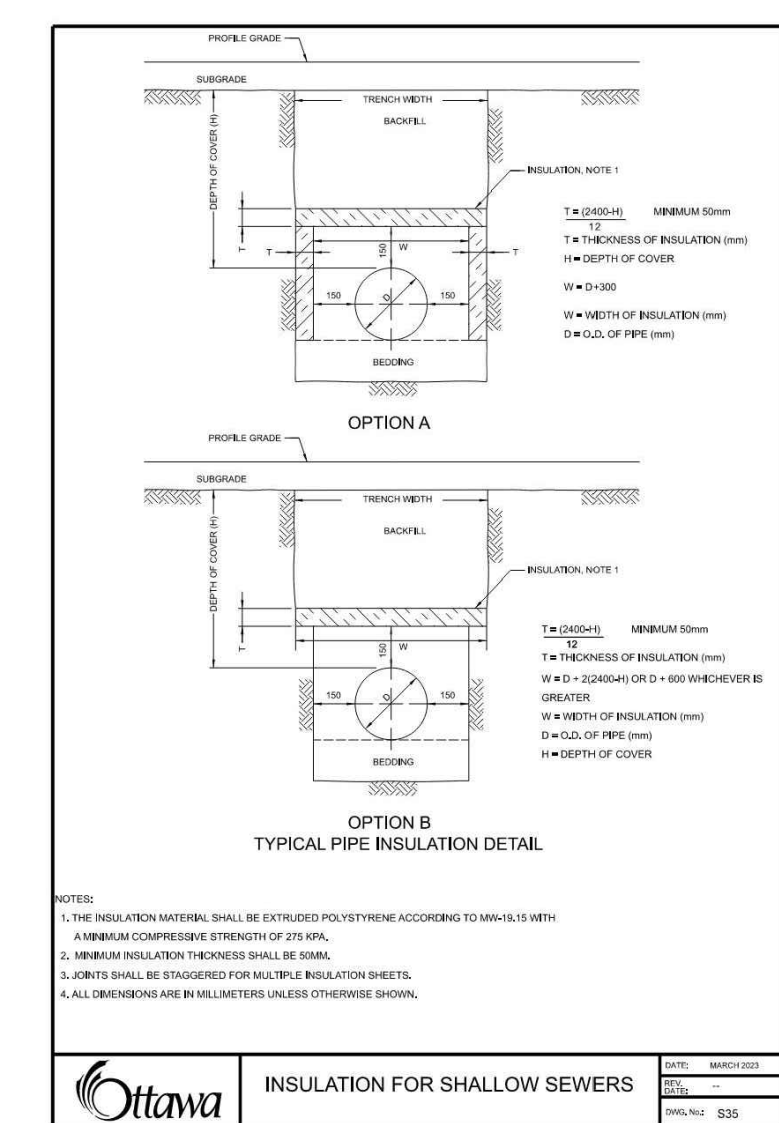
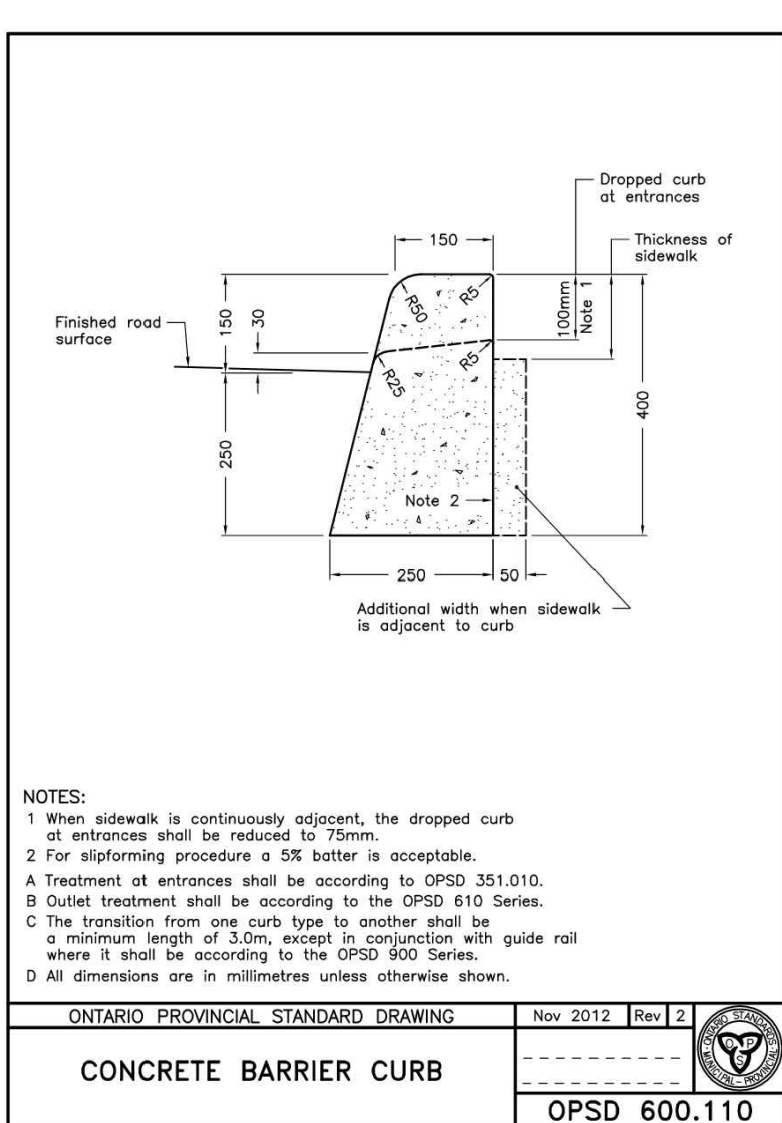
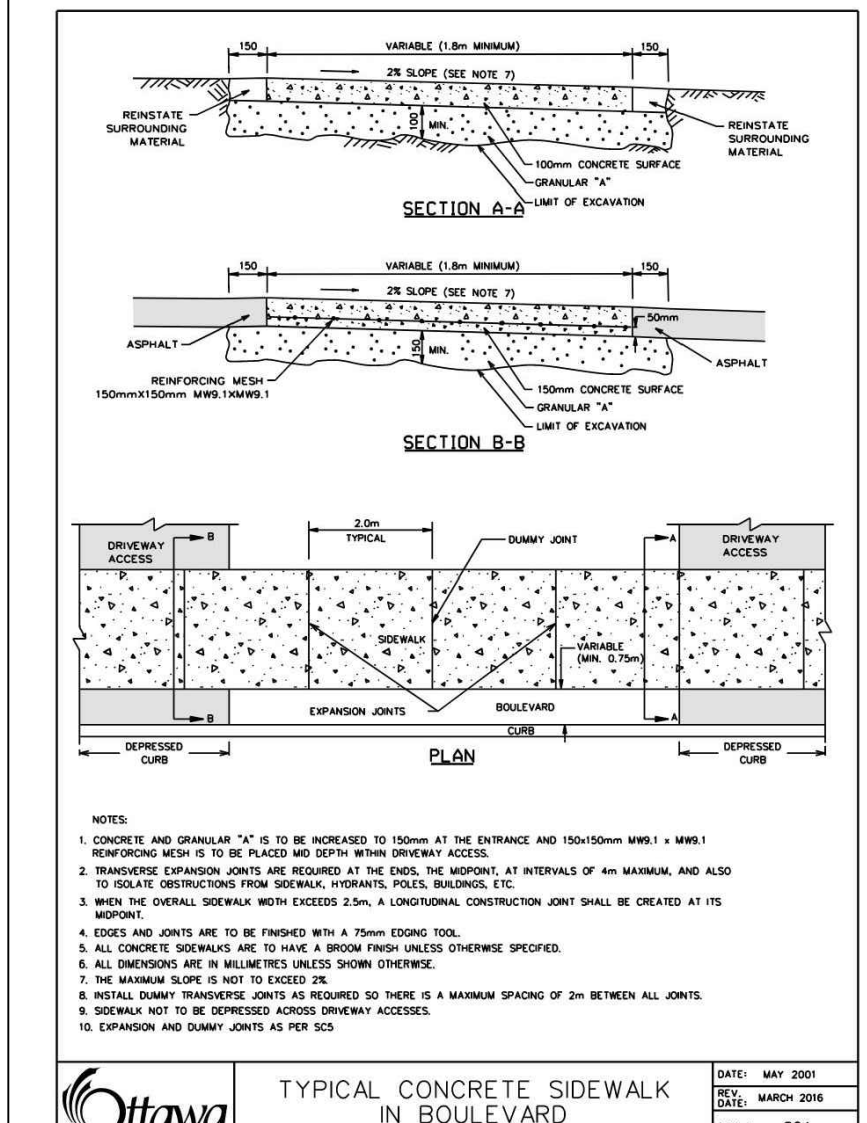
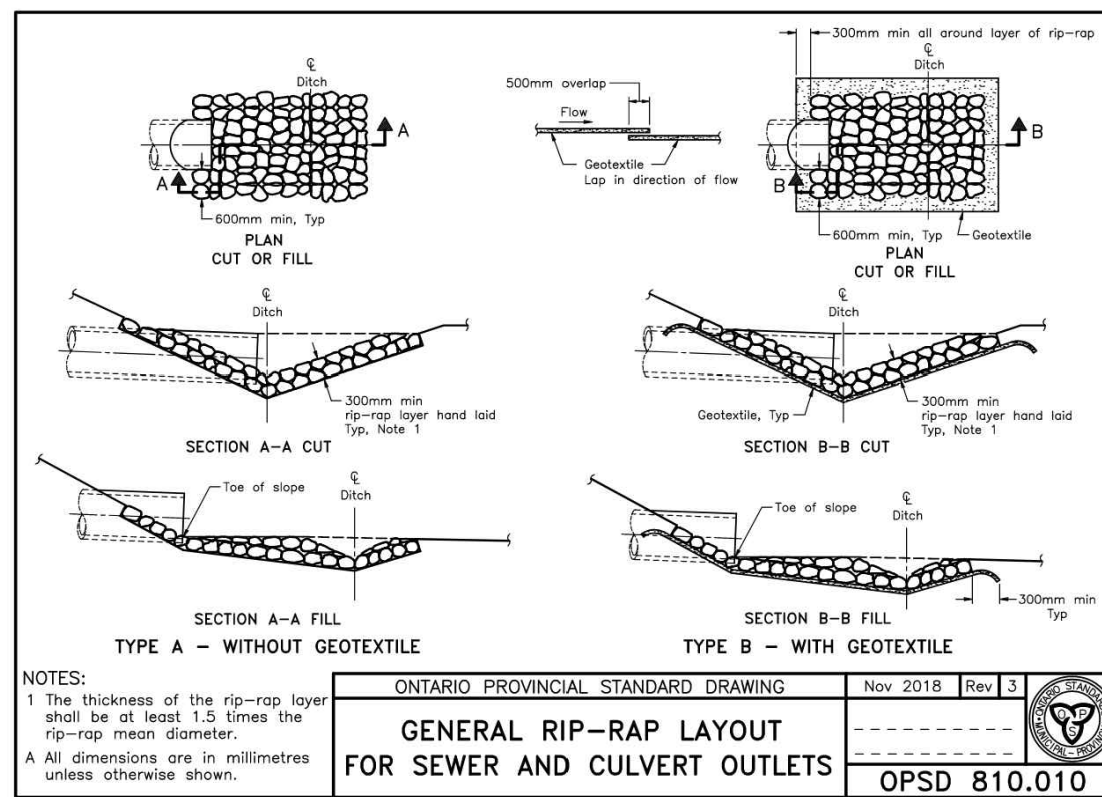
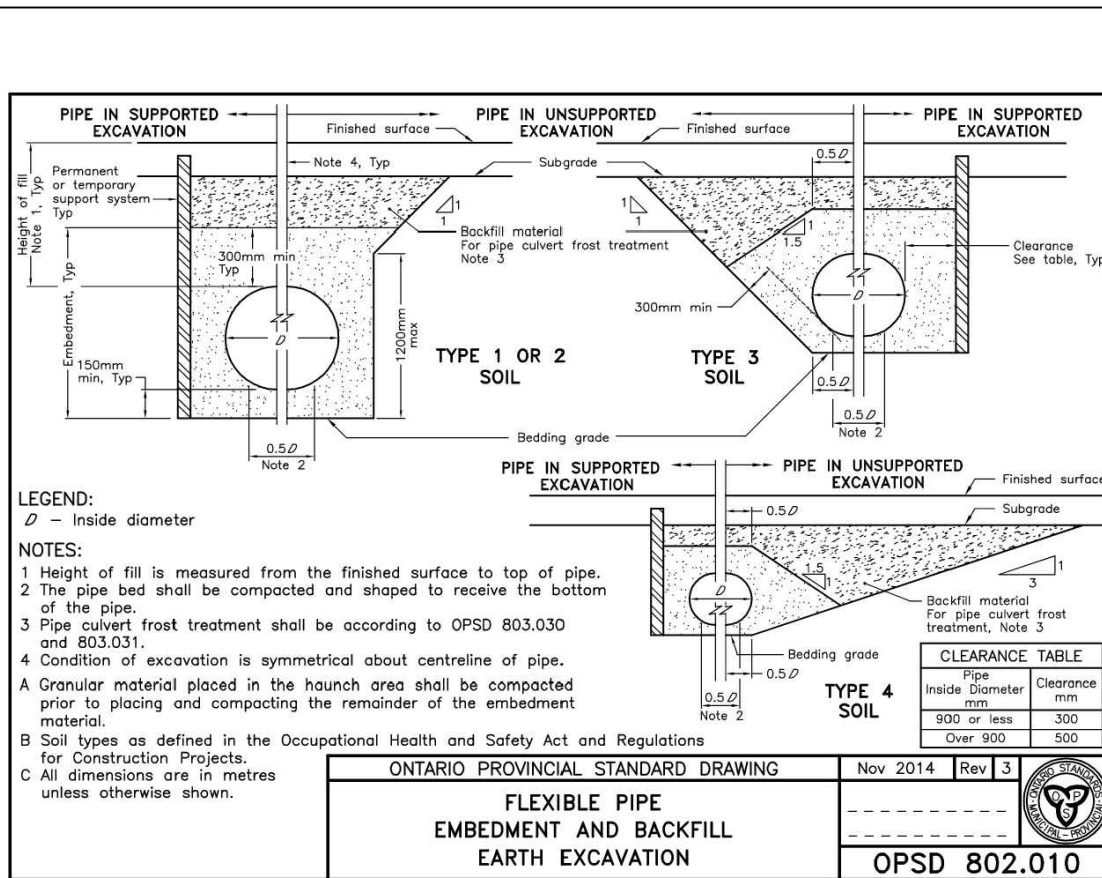
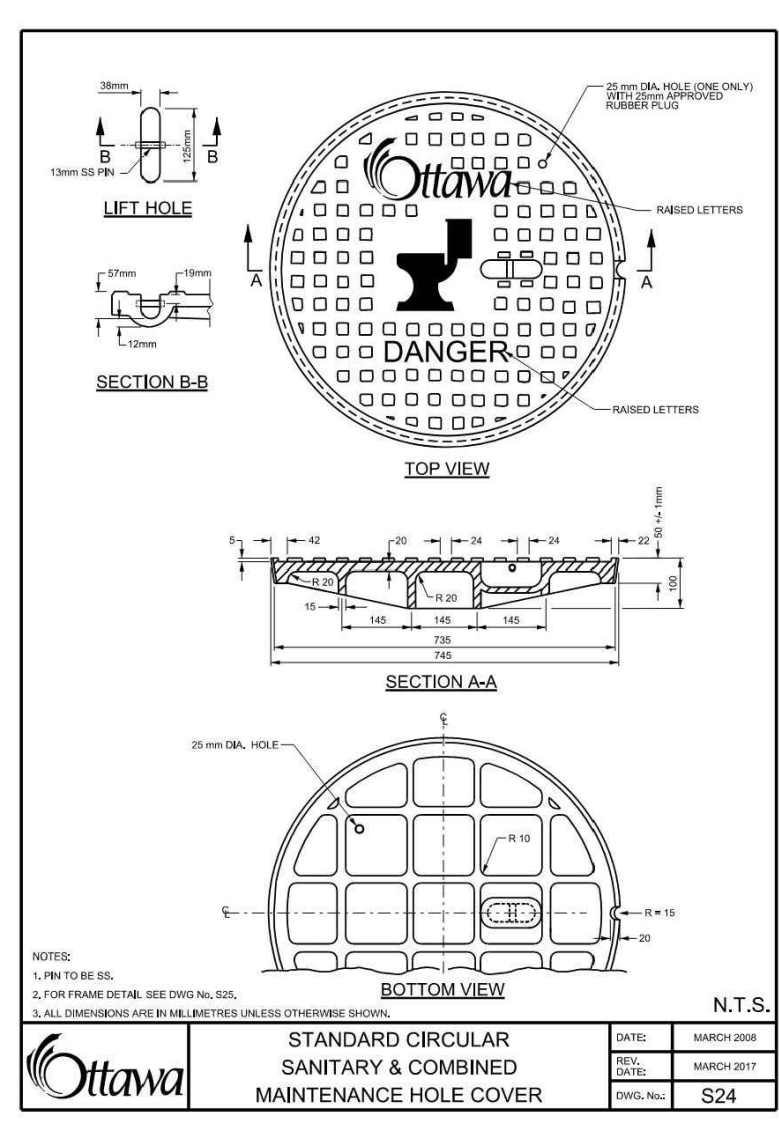
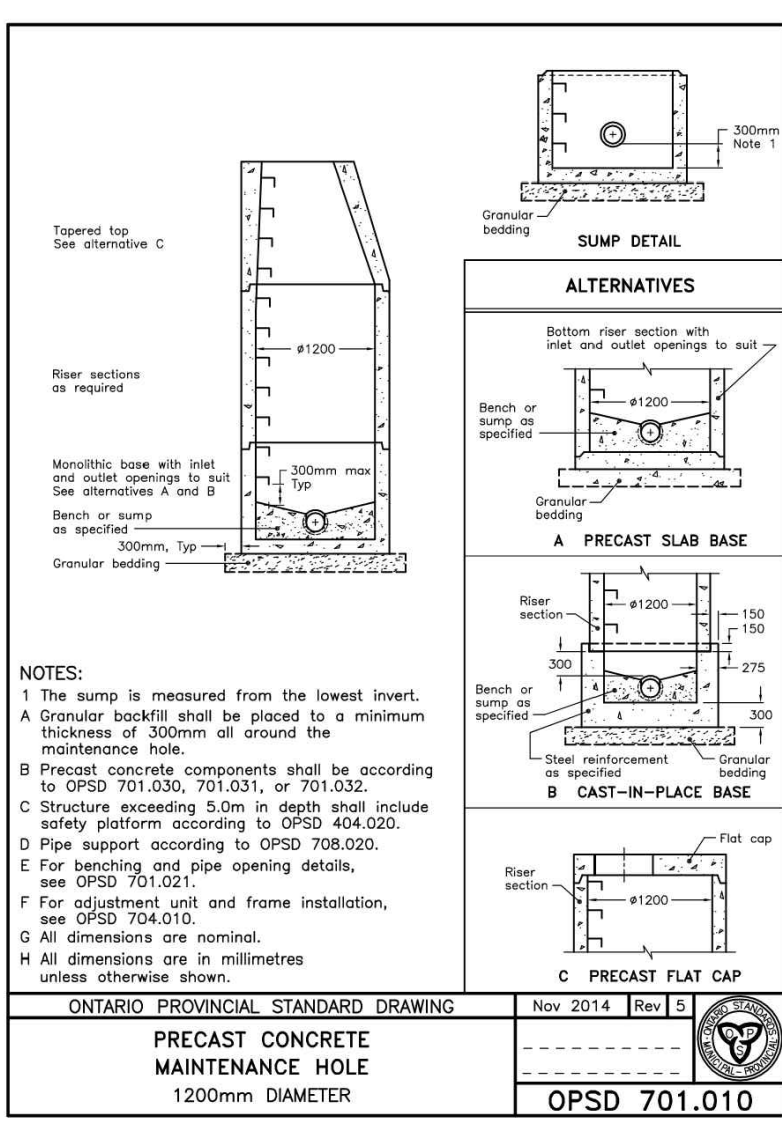
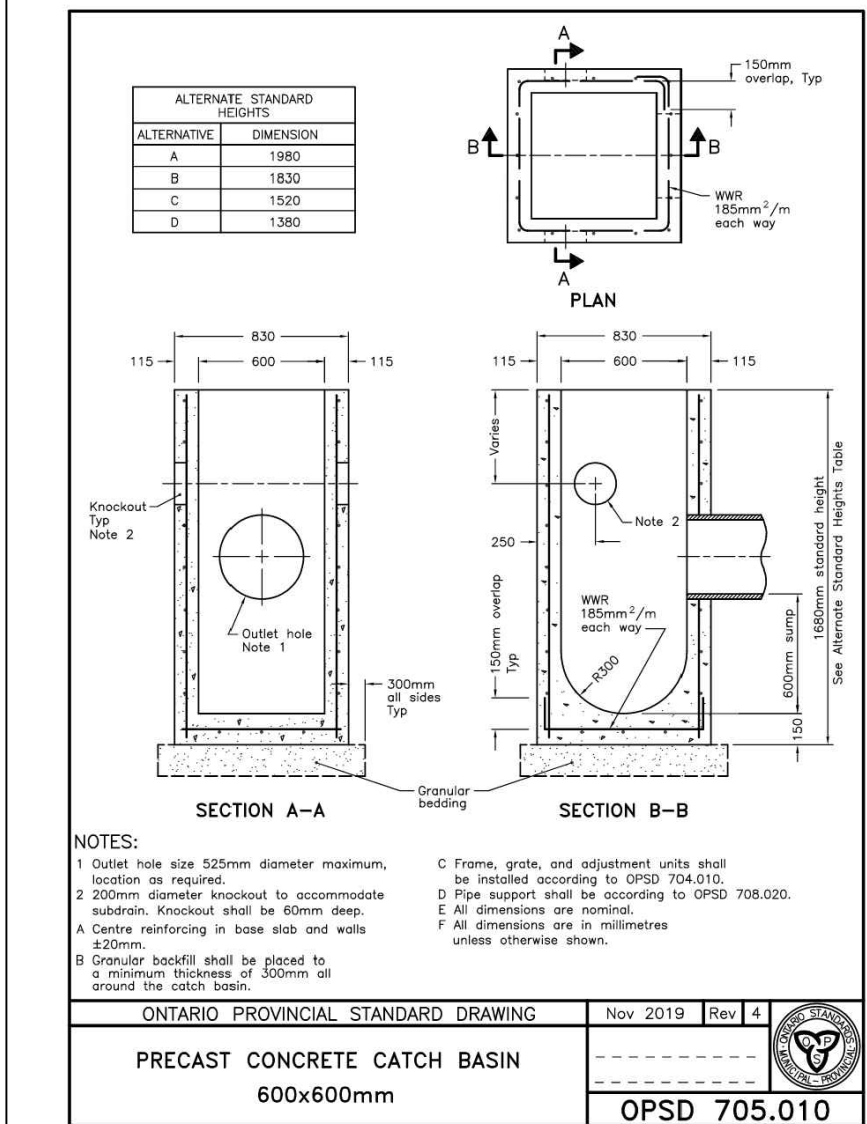


DRAWING TITLE

POST-DEVELOPMENT  
WATERSHED PLAN

PROJECT NO.

230464 C702



**USE AND INTERPRETATION OF DRAWINGS**

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE SPECIFICATIONS, ADDENDUM, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIES THEREOF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATE THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE, THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL, AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PRIOR AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AND/OR AMBIGUITIES WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

| No. | REVISIONS           | BY   | DATE        |
|-----|---------------------|------|-------------|
| 04  | ISSUED FOR APPROVAL | M.L. | 08 JUL 2026 |
| 03  | ISSUED FOR APPROVAL | M.L. | 12 NOV 2025 |
| 02  | ISSUED FOR APPROVAL | M.L. | 17 JUL 2025 |
| 01  | ISSUED FOR APPROVAL | M.L. | 17 JAN 2025 |

**LRL**  
ENGINEERING | INGENIERIE  
5430 Carotek Road | Ottawa, ON, K1J 9G2  
www.lrl.ca | (613) 842-3434

CLIENT  
**ABDULLA REAL ESTATE HOLDINGS INC.**

DESIGNED BY: M.L. DRAWN BY: M.L. APPROVED BY: M.B.

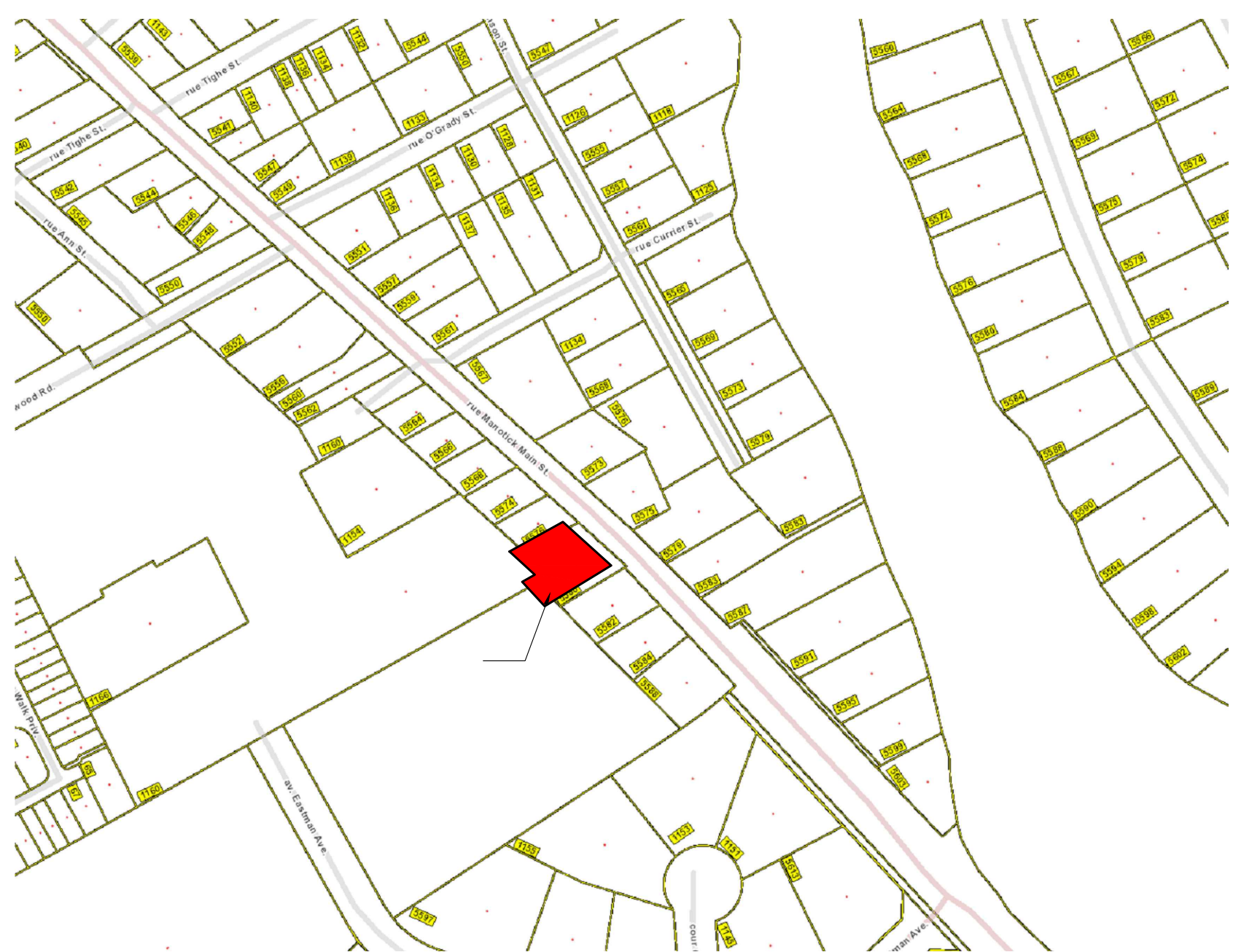
PROJECT  
**PROPOSED MULTI-USE BUILDING  
5580 MANOTICK MAIN ST  
OTTAWA, ON**

DRAWING TITLE  
**CONSTRUCTION DETAIL PLAN**

PROJECT NO.  
**230464 C901**

## **DRAWINGS/FIGURES**

**Proposed Site Plan  
Legal Survey  
As-builts**



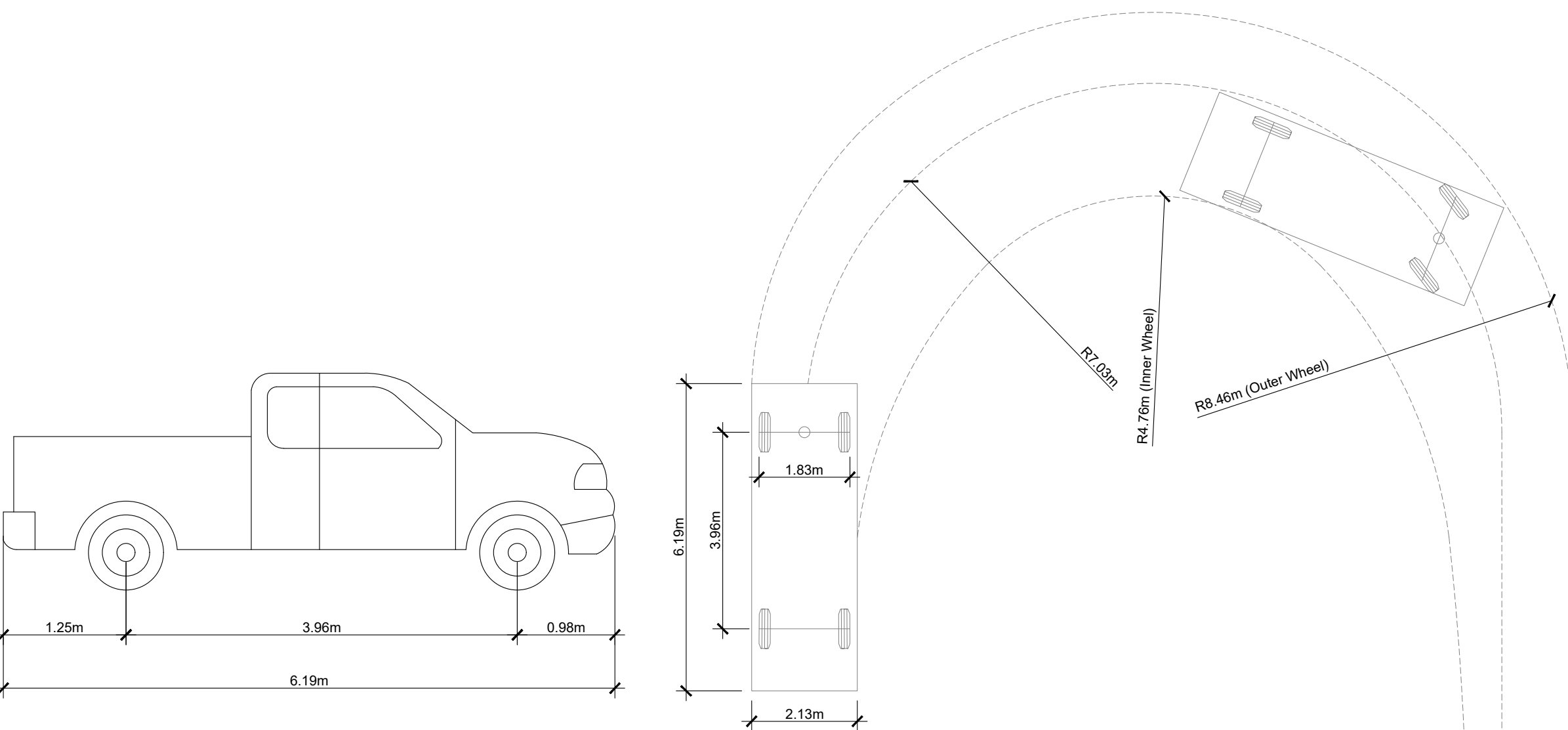
1 LOCATION PLAN  
A0

| Building Analysis    |                      | O.B.C. Requirements    |                                            |
|----------------------|----------------------|------------------------|--------------------------------------------|
| Building Area:       | 312.6m <sup>2</sup>  | Classification:        | 3.2.2.62                                   |
| Basement Floor Area: | 312.6m <sup>2</sup>  |                        | Group D. up to 3 Storeys                   |
| Ground Floor Area:   | 312.6m <sup>2</sup>  | No. of Storeys:        | 3                                          |
| Second Floor Area:   | 312.6m <sup>2</sup>  | No. of Facing Streets: | 1                                          |
| Third Floor Area:    | 131.8m <sup>2</sup>  | Sprinkler System:      | No                                         |
| Gross Floor Area:    | 1069.6m <sup>2</sup> | Maximum Area:          | 1600m <sup>2</sup>                         |
|                      |                      | Construction:          | Combustible or Noncombustible Construction |

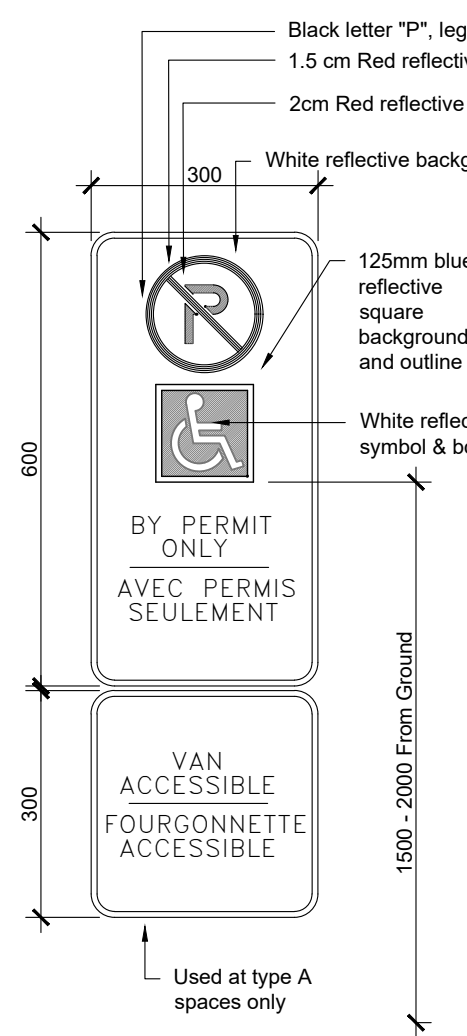
| Parking Requirements         |                      |                      |                      |                         |
|------------------------------|----------------------|----------------------|----------------------|-------------------------|
| Space:                       | Area Classification: | Area:                | Parking Requirement: | Total Parking required: |
| Ground Floor Pharmacy        | Retail Store         | 93 m <sup>2</sup>    | 3.4 per 100sqm       | 3.162                   |
| Ground Floor Office          | Office Space         | 46.5 m <sup>2</sup>  | 2.4 per 100sqm       | 1.116                   |
| Ground Floor Office          | Office Space         | 52.7 m <sup>2</sup>  | 2.4 per 100sqm       | 1.264                   |
| Second Floor Office          | Office Space         | 46.5 m <sup>2</sup>  | 2.4 per 100sqm       | 1.116                   |
| Second Floor Medical Suite   | Medical Facility     | 175.8 m <sup>2</sup> | 4 per 100sqm         | 7.032                   |
| Third Floor Office (Owner's) | Office Space         | 78.96 m <sup>2</sup> | 2.4 per 100sqm       | 1.895                   |
| Total:                       |                      |                      |                      | 15.585                  |

| Weekday |      |           |         | Saturday |      |           |         |
|---------|------|-----------|---------|----------|------|-----------|---------|
| Morning | Noon | Afternoon | Evening | Morning  | Noon | Afternoon | Evening |
| 13.9    | 13.4 | 14.6      | 6.3     | 5.7      | 7.7  | 7.5       | 3.7     |

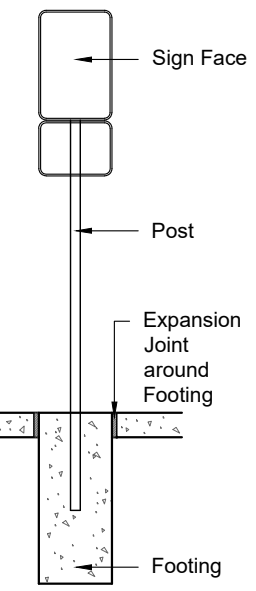
| Zoning: VM9                            |                                                                                                                                                                                                           |                                                             |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Mechanism                              | Provision                                                                                                                                                                                                 | Provided                                                    |
| Minimum lot area                       | 1350m <sup>2</sup>                                                                                                                                                                                        | 1016.6m <sup>2</sup>                                        |
| Minimum lot width                      | 20m                                                                                                                                                                                                       | 31.85m                                                      |
| Minimum front yard setback             | (i) minimum - no minimum<br>(ii) maximum - 3m                                                                                                                                                             | 3m                                                          |
| Right of way setback                   | Minimum 8.5m from centreline of road                                                                                                                                                                      | 10.23m from centreline of road                              |
| Minimum corner side yard setback       | (i) minimum - 3m<br>(ii) maximum - 4.5m                                                                                                                                                                   | n/a                                                         |
| Minimum interior side yard setback     | Where abutting Residential Zone: 3m<br>Where abutting any other zone: no minimum                                                                                                                          | 1.2m                                                        |
| Minimum rear yard setback              | (i) residential use building: 25% of lot depth, minimum of 7.5m<br>(ii) non-residential use and mixed use buildings abutting a residential zone: 7.5m<br>(iii) all other cases: no minimum                | n/a                                                         |
| Maximum building height                | (i) minimum - 6.7m<br>(ii) maximum - 11m                                                                                                                                                                  | 1.2m<br>12.5m (Minor Variance Required)                     |
| Minimum required parking               | Minimum Required: 14.6 Parkings                                                                                                                                                                           | 15 Parkings                                                 |
| Barrier free parking required          | 1 for the first 25 parking spaces required (Traffic and Parking By-law No. 2017-301)                                                                                                                      | 1 Barrier Free Parking Provided                             |
| Barrier free parking space size        | 3.4 m wide (Traffic and Parking By-law No. 2017-301)                                                                                                                                                      | 3.4 m width Provided                                        |
| Small parking                          | Up to 50% allowed: 2.4m x 4.6m                                                                                                                                                                            | 3 Small Parkings Provided (2.4m wide x 5.2m long)           |
| Minimum required bicycle parking       | 1 space for every 1000m <sup>2</sup> of GFA<br>No minimum, except that where a yard is provided and not used for required driveways, aisles, parking or loading spaces, the whole yard must be landscaped | 1 Bicycle Parking Provided                                  |
| Minimum width of landscaped area       |                                                                                                                                                                                                           | Whole yard is landscaped                                    |
| Landscape area surrounding parking lot | For a parking lot containing more than 10 but fewer than 100 spaces: 3 m abutting a street and 1.5 m not abutting a street (Table 110)                                                                    | Abutting the street: 8.38 m<br>Not abutting a street: 1.5 m |
| Landscaping provisions for parking lot | 15% Required                                                                                                                                                                                              | 20.4% Provided                                              |
| Outdoor garbage                        | Must be located 9m from a lot line abutting a public street and 3 m from any other lot line and screened from view with an opaque screen with a minimum height of 2 m                                     | Not abutting a street: 3.81 m                               |



7 TURNING RADII FOR PICKUP TRUCK  
A0 SCALE: 1:100



7 BARRIER FREE SIGNAGE  
A0 SCALE: 1:50

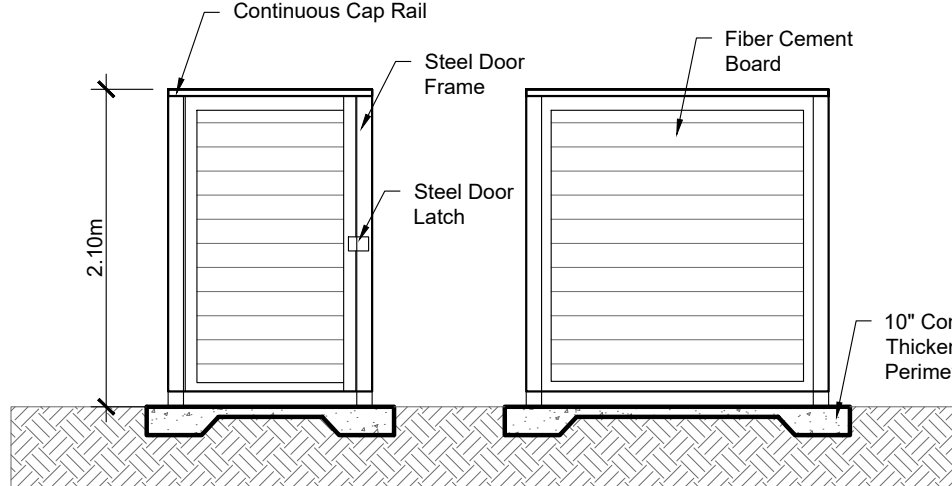


All Accessible parking stalls shall be designated by one sign per bay meeting accessibility design standards:

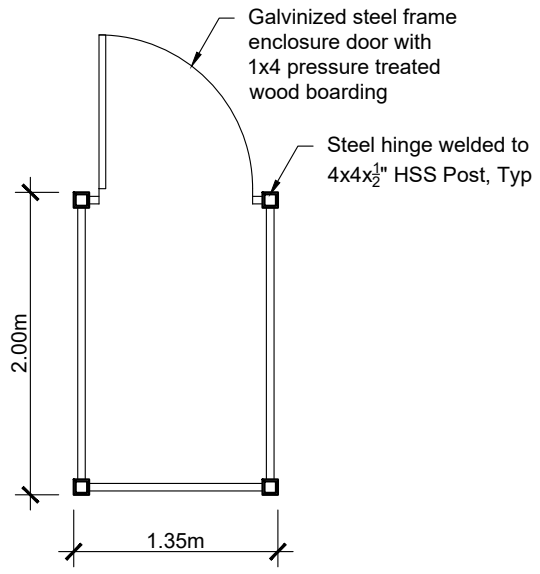
- Made with international symbol of accessibility;
- Ensure size of 300mm wide by 300mm high (minimum);
- Mount at height of 1500mm to 2000mm (centre) (B.C., wall or post mounted) from ground floor;
- Ensure a high level contrast is provided between sign and background environment;
- Provide information text, compliant with city by law requirements; and
- Provide additional bilingual signage that identifies type A spaces as "van accessible/ fourgonnette accessible".

Signage face: 0.064mm gauge aluminum sign blank, white background with top and bottom mount holes

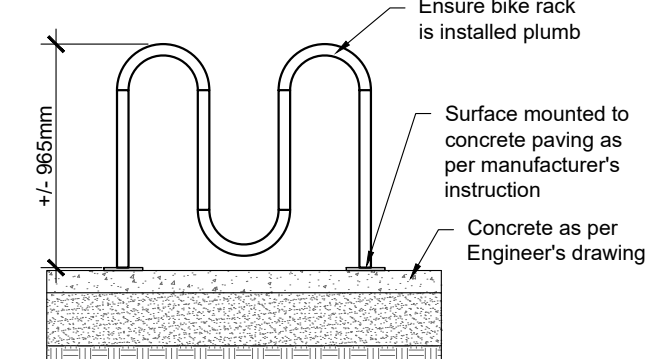
Mounting: The sign face must be secured to a post with two galvanized 12mm hex. head bolts and nuts with flat washers on both sides.



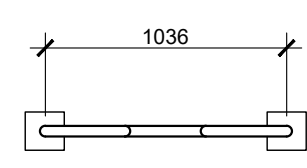
5 GARBAGE ELEVATION  
A0 SCALE: 1:50



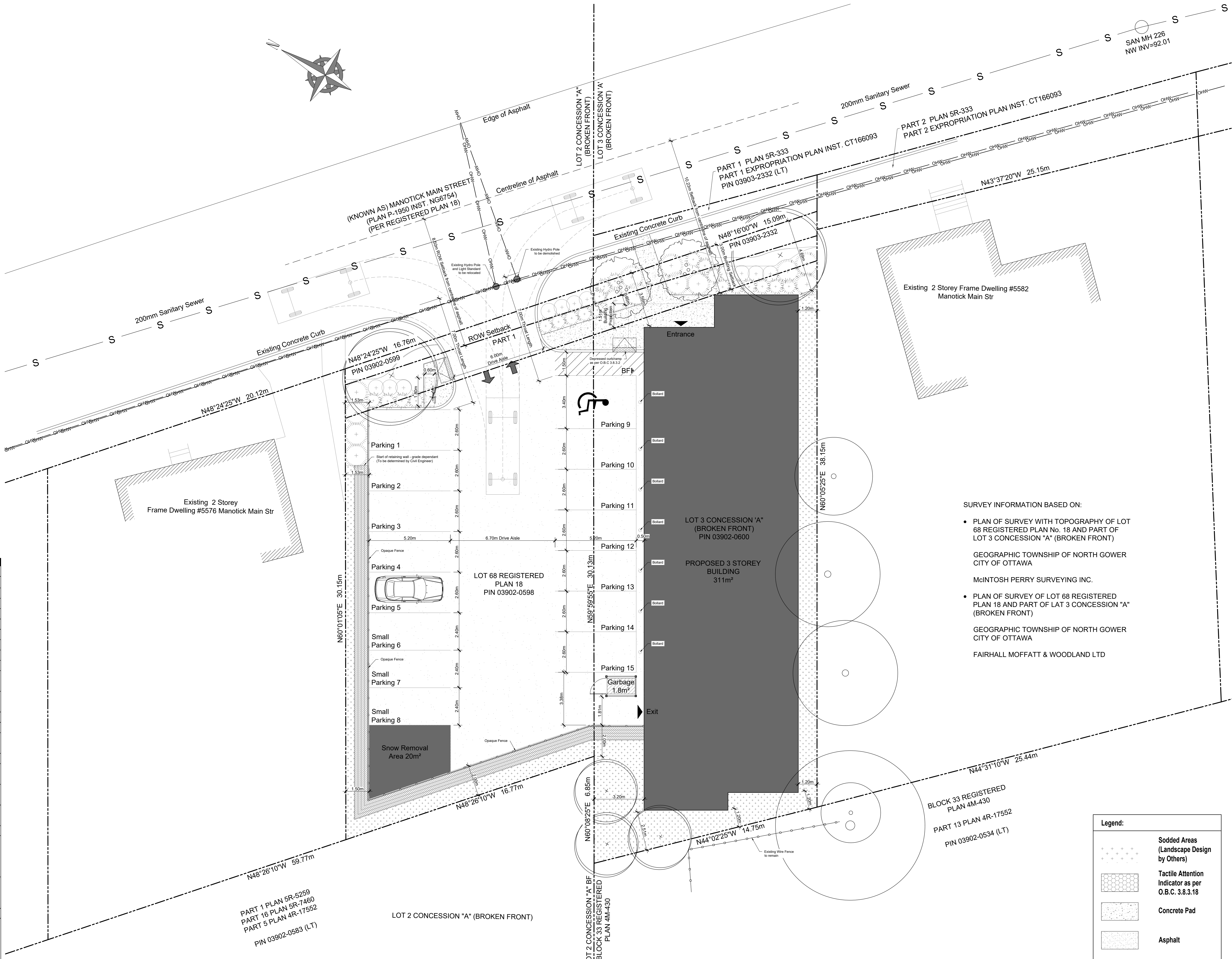
6 GARBAGE PLAN  
A0 SCALE: 1:50



4 BIKE RACK ELEVATION  
A0 SCALE: 1:50



3 BIKE RACK PLAN  
A0 SCALE: 1:50



SURVEY INFORMATION BASED ON:

- PLAN OF SURVEY WITH TOPOGRAPHY OF LOT 68 REGISTERED PLAN No. 18 AND PART OF LOT 3 CONCESSION "A" (BROKEN FRONT) PIN 03902-0600
- GEOGRAPHIC TOWNSHIP OF NORTH GOWER CITY OF OTTAWA
- McINTOSH PERRY SURVEYING INC.
- PLAN OF SURVEY OF LOT 68 REGISTERED PLAN 18 AND PART OF LAT 3 CONCESSION "A" (BROKEN FRONT)
- GEOGRAPHIC TOWNSHIP OF NORTH GOWER CITY OF OTTAWA
- FAIRHALL MOFFATT & WOODLAND LTD

| Legend: |                                                    |
|---------|----------------------------------------------------|
|         | Sodded Areas (Landscape Design by Others)          |
|         | Tactile Attention Indicator as per O.B.C. 3.8.3.18 |
|         | Concrete Pad                                       |
|         | Asphalt                                            |
|         | Retaining Wall                                     |
|         | Two way traffic                                    |
|         | Entrance to Building                               |
|         | Barrier Free Parking Sign                          |

GENERAL NOTES:

- Do not scale drawings.
- The contractor shall check and verify all dimensions on site and report all discrepancies to the Architect.
- All work shall comply with the Ontario Building Code and the requirements of all authorities having jurisdiction.
- This drawing is the exclusive property of Ignite Architecture Inc. copyright reserved.

Note:  
This Drawings shall be used only for the Site Plan Application, it is not to be used for Permit or Construction purposes.

SEAL:

ONTARIO ASSOCIATION OF ARCHITECTS  
NICOLE CHILTON-JONES  
LICENCE 9766

DRAWING REVISIONS

| No. | Issued for:                      | Date:       |
|-----|----------------------------------|-------------|
| 1   | Issued for Site Plan Application | 19 Feb 2025 |
| 2   | Issued for design review         | 01 Aug 2025 |
| 3   | Issued for Coordination          | 30 Oct 2025 |

SITE ADDRESS:

5580 Manotick Main Str  
Manotick  
ON K4M 1E2

APPLICANT:

ARCADIS

Arcadis Professional Services (Canada) Inc.  
Suite 500, 333 Preston Street  
Ottawa ON K1S 5M4 | Canada  
tel +1 613 225 1311  
www.arcadis.com

OWNER INFORMATION:

Abdulla Real Estate Holdings  
Box 819 Manotick  
K4M 1A7

ARCHITECT:

IGNITE ARCHITECTURE INC.

533 Lansdowne Way  
Ottawa, ON K2S 0A6  
Phone: 613 - 912 - 1832  
Email: nicole@ignitearchitecture.ca

ENGINEERS:

Capacity Engineering Limited

LTD.  
www.celottawa.ca  
505 March Rd, Suite 400,  
Ottawa ON K2K 3A4

5430 Carleton Rd., Ottawa ON K1J 9G2  
www.iri.ca 613-842-3434

LRJ

5430 Carleton Rd., Ottawa ON K1J 9G2  
www.iri.ca 613-842-3434

SURVEYORS:

McINTOSH PERRY SURVEYING INC.

NOW KNOWN AS:  
www.egis-group.com

3240 Drummond Con. 5A, R.R. 7,  
Perth ON K7H 3C9  
Tel: 613-267-6524  
www.egis-group.com

Fairhall Moffatt & Woodland LIMITED

ONTARIO LAND SURVEYORS  
Surveying and Land Information Services  
100-600 Terry Fox Dr., Kanata, ON K2L 4B6  
Tel: 613-891-2880 www.fmw.on.ca

DRAWING TITLE:

PROPOSED SITE PLAN AND ELEVATIONS

PROJECT:

DWG NO:

2208

A0

FILE NO:

D07-12-25-0022

PLAN # 19254

LEGEND AND NOTES

|         |         |                                                                                    |        |         |                                |
|---------|---------|------------------------------------------------------------------------------------|--------|---------|--------------------------------|
| □       | DENOTES | MONUMENT PLANTED                                                                   | H      | DENOTES | HYDRO POLE                     |
| ■       | "       | MONUMENT FOUND                                                                     | B      | "       | BELL POLE                      |
| SIB     | "       | STANDARD IRON BAR                                                                  | B&H    | "       | BELL & HYDRO POLE              |
| SSIB    | "       | SHORT STANDARD IRON BAR                                                            | LS     | "       | LAMP STANDARD                  |
| IB      | "       | IRON BAR                                                                           | OHW    | "       | OVERHEAD WIRES                 |
| CP      | "       | CONCRETE PIN                                                                       | CONC.  | "       | CONCRETE                       |
| CC      | "       | CUT CROSS IN CONCRETE WALK                                                         | CLF    | "       | CHAIN LINK FENCE               |
| ORP     | "       | OBSERVED REFERENCE POINT                                                           | BF     | "       | BOARD FENCE                    |
| WT      | "       | WITNESS                                                                            | W&MF   | "       | WOOD & SHEET METAL FENCE       |
| ms      | "       | MEASURED                                                                           | SRW    | "       | STONE RETAINING WALL           |
| By Prop | "       | SET BY PROPORTION                                                                  | CB     | "       | CATCH BASIN                    |
| SRPR    | "       | SURVEYOR'S REAL PROPERTY REPORT                                                    | MHSAN  | "       | SANITARY MAINTENANCE HOLE      |
| P1      | "       | REGISTERED PLAN No. 18                                                             | T/G    | "       | TOP OF GRATE OR UD ELEVATION   |
| P2      | "       | EXPROPRIATION PLAN INSTRUMENT CT166093                                             | TB B   | "       | TERMINAL BOX - BELL CANADA     |
| P3      | "       | REGISTERED PLAN 4M-430                                                             | GM     | "       | GAS METER                      |
| P4      | "       | PLAN SR-7460                                                                       | BOL    | "       | BOLLARD                        |
| P5      | "       | PLAN 4R-17552                                                                      | AC     | "       | GROUND MOUNTED AIR CONDITIONER |
| P6      | "       | SRPR DATED SEPTEMBER 16, 2011 BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. (FILE 12370-11) | DS     | "       | DOOR SILL ELEVATION            |
|         | "       |                                                                                    | PO     | "       | WOOD POST OR SUPPORT COLUMN    |
| P7      | "       | SRPR DATED MARCH 30, 2017 BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. (FILE 19442-17)     | TBM    | "       | TEMPORARY BENCHMARK            |
|         | "       |                                                                                    | N.T.S. | "       | NOT TO SCALE                   |
| DI      | "       | INSTRUMENT N584765.                                                                |        |         |                                |
| D2      | "       | INSTRUMENT N720533                                                                 |        |         |                                |
| 647     | "       | H.R. FARLEY O.L.S.                                                                 |        |         |                                |
| 889     | "       | W.H. MOFFATT O.L.S.                                                                |        |         |                                |
| 1175    | "       | H.A.K. SHIPMAN O.L.S.                                                              |        |         |                                |
| AOG     | "       | ANNIS, O'SULLIVAN, VOLLEBEKK LTD.                                                  |        |         |                                |
| OU      | "       | ORIGIN UNKNOWN                                                                     |        |         |                                |

DISTANCES:

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES AND CAN BE USED TO COMPUTE GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999941

BEARINGS:

BEARINGS ARE MTM GRID BEARINGS, DERIVED BY REAL TIME NETWORK GNSS OBSERVATIONS ON OBSERVED REFERENCE POINTS 'A' AND 'B' SHOWN HEREON, AND ARE REFERRED TO THE NAD83 ORIGINAL MTM ZONE 9 COORDINATE SYSTEM.

BEARING ROTATION:

FOR THE PURPOSE OF COMPARISON, ASTRONOMIC BEARINGS HAVE BEEN ROTATED AS FOLLOWS:

| PLAN          | ROTATION  | DIRECTION         |
|---------------|-----------|-------------------|
| (p2 & p6)     | 00°30'00" | COUNTER-CLOCKWISE |
| (p3, p4 & p5) | 00°35'25" | COUNTER-CLOCKWISE |

ELEVATIONS:

ELEVATIONS ARE CANADA GEODETIC VERTICAL DATUM 28/78 DERIVED BY REAL TIME NETWORK GPS OBSERVATIONS REFERENCED TO THE CANADA HT\_2 GEOD MODEL.

THE CONTOUR INTERVAL IS 0.25 METRES.

CAUTION:

THE LOCATION AND CONFIGURATION OF UNDERGROUND SERVICES AND UTILITIES IS NOT WITHIN THE SCOPE OF THIS SURVEY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE CONFIGURATION AND LOCATION OF UNDERGROUND SERVICES AT THE SITE PRIOR TO CONSTRUCTION.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.

2. THE SURVEY WAS COMPLETED ON THE 20th DAY OF DECEMBER, 2022.

JANUARY 6, 2023  
DATE

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-35837.

John Gauthier  
JOHN GAUTHIER  
ONTARIO LAND SURVEYOR

PLAN OF SURVEY WITH TOPOGRAPHY OF LOT 68 REGISTERED PLAN No. 18 AND PART OF LOT 3 CONCESSION "A" (BROKEN FRONT) GEOGRAPHIC TOWNSHIP OF NORTH GOWER CITY OF OTTAWA

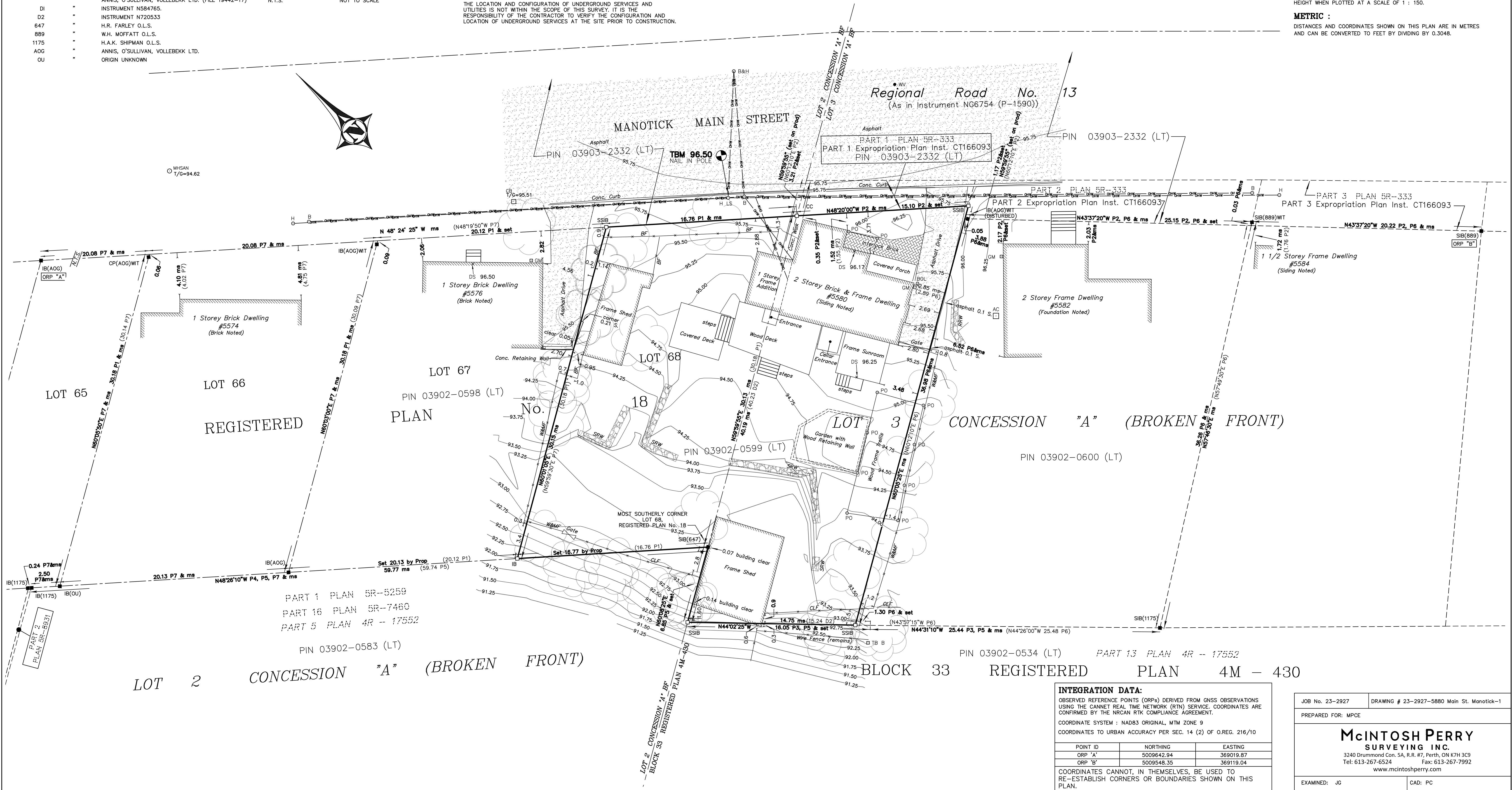
McINTOSH PERRY SURVEYING INC.

SCALE 1 : 150

0 2.5 5.0 7.5 10.0 12.5 15.0 Metres  
THE INTENDED PLOT SIZE OF THIS PLAN IS 914mm IN WIDTH BY 609mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1 : 150.

METRIC :

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.



INTEGRATION DATA:

OBSERVED REFERENCE POINTS (ORP) DERIVED FROM GNSS OBSERVATIONS USING THE CANNET REAL TIME NETWORK (RTN) SERVICE. COORDINATES ARE CONFIRMED BY THE NRCAN RTK COMPLIANCE AGREEMENT.

COORDINATE SYSTEM : NAD83 ORIGINAL, MTM ZONE 9

COORDINATES TO URBAN ACCURACY PER SEC. 14 (2) OF O.REG. 216/10

| POINT ID | NORTHING   | EASTING   |
|----------|------------|-----------|
| ORP "A"  | 5009642.94 | 369019.87 |
| ORP "B"  | 5009548.35 | 369119.04 |

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

JOB No. 23-2927 DRAWING # 23-2927-5880 Main St. Manotick-1

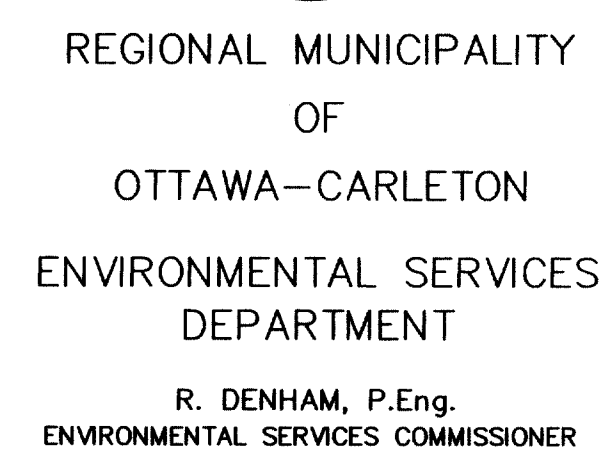
PREPARED FOR: MPCE

McINTOSH PERRY  
SURVEYING INC.

3240 Drummond Con. 5A, R.R. #7, Perth, ON K7H 3C9  
Tel: 613-267-6524 Fax: 613-267-7992  
www.mcintoshperry.com

EXAMINED: JG

CAD: PC



Manager of  
Water Facility  
Project Branch  
Date



Date \_\_\_\_\_

Drawn by:

Date \_\_\_\_\_

Checked by:

Date \_\_\_\_\_

Notes:

1. CONNECTIONS TO EXISTING AND NEW WATERMAINS SHALL BE BY GENERAL CONTRACTOR UNDER SUPERVISION OF R.M.O.C. PERSONNEL.
2. SUPPLY AND INSTALL WATERMAIN, ALL IN ACCORDANCE WITH R.M.O.C. STANDARDS AND SPECIFICATIONS.
3. CONTRACTOR IS REQUIRED TO OBTAIN LOCATES FOR ALL UTILITIES PRIOR TO EXCAVATING. ALL UTILITIES SHOWN ARE APPROXIMATE.
4. BOREHOLE INFORMATION SHOWN AS PER SOILS REPORT PREPARED BY JOHN D. PATTERSON AND ASSOCIATES LTD., FILE 55791.
5. ALL FIRE HYDRANT FLANGES(BOTTOM) SHALL BE INSTALLED @ 100mm ABOVE EXISTING FINISHED GRADES.
6. SERVICES WERE INSTALLED ON PRIVATE PROPERTY AND CONNECTED TO EXISTING PLUMBING.

 AUGER REFUSAL

N/R END OF BOREHOLE

|            |                                   |             |
|------------|-----------------------------------|-------------|
|            |                                   |             |
| 3.         | ADD AS-BUILT INFORMATION          | 05 OCT./93  |
| 2.         | REVISED FOR CONSTRUCTION          | 18 NOV./92  |
| 1.         | REVISED FOR TENDERING             | 21 SEPT./92 |
| 0.         | ISSUED FOR GOVERNMENTAL APPROVALS | SEPT/92     |
| <b>No.</b> | <b>Revision</b>                   | <b>Date</b> |

|  |        |
|--|--------|
|  | Scales |
|--|--------|

HORIZ. 1 : 500  
VERT. 1 : 50

|               |
|---------------|
| Project Title |
|---------------|

MANOTICK WATER  
DISTRIBUTION SYSTEM

MAIN STREET

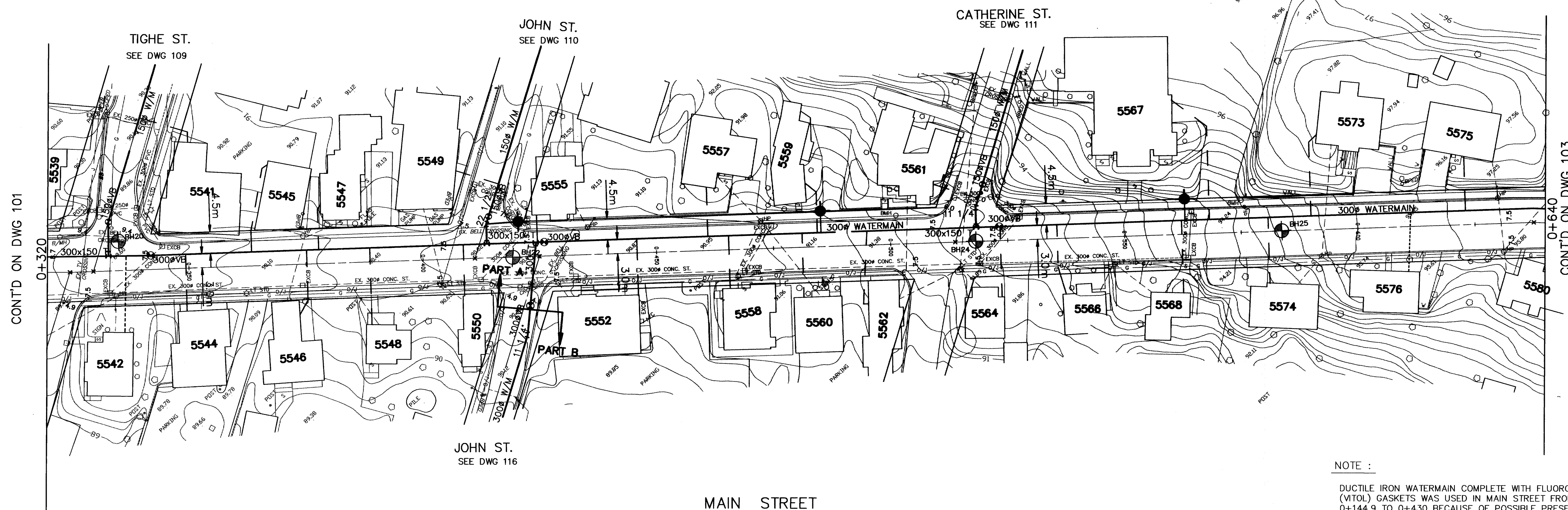
STA 0+320  
TO  
STA 0+640

Drawing No.:

3708-MU-102

Rev. No.:

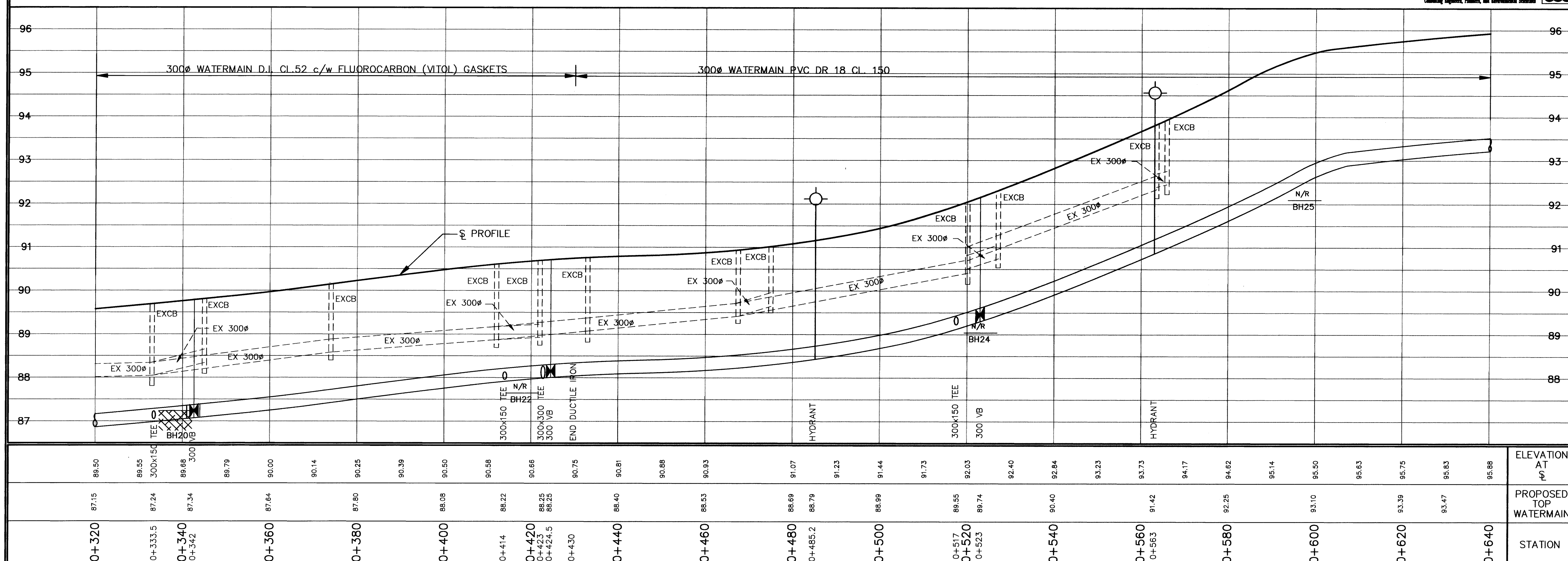
3

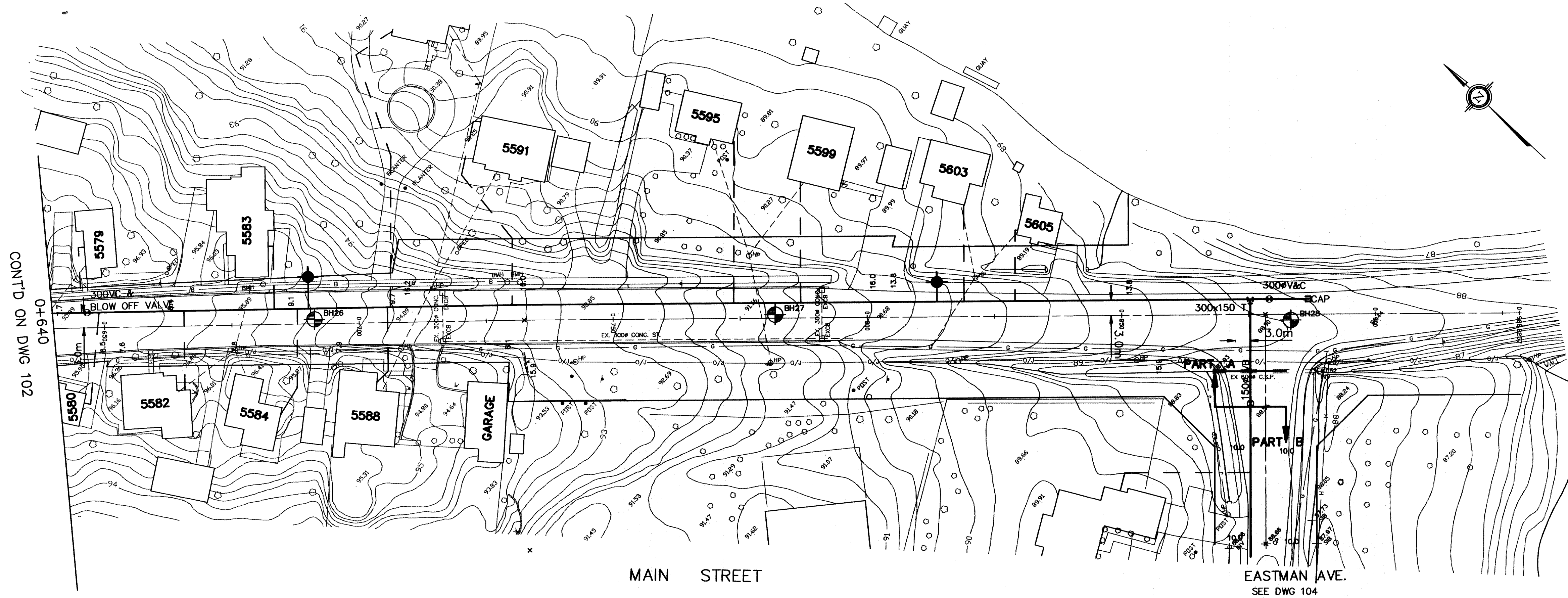


NOTE :

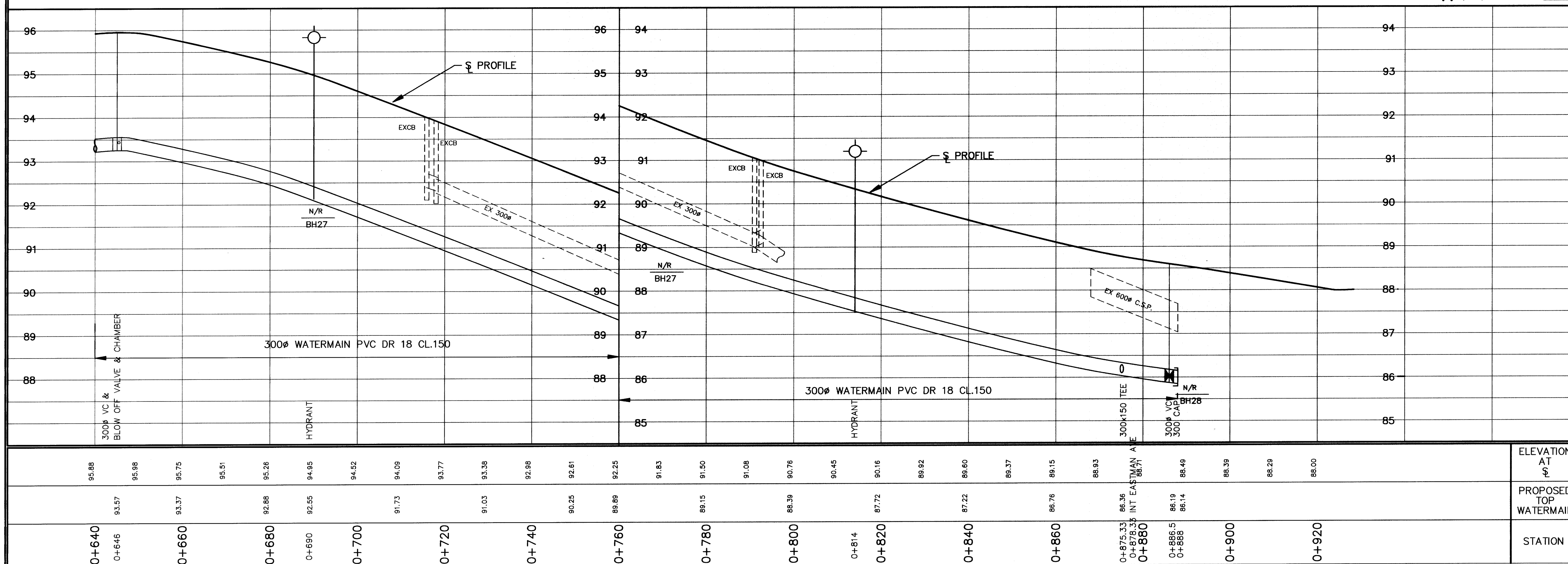
DUCTILE IRON WATERMAIN COMPLETE WITH FLUOROCARBON (VITOL) GASKETS WAS USED IN MAIN STREET FROM STA. 0+144.9 TO 0+430 BECAUSE OF POSSIBLE PRESENCE OF HYDROCARBON ENVIRONMENT NEAR WATERMAIN TRENCH.

**Cumming Cockburn Limited**   
Consulting Engineers, Planners, and Environmental Scientists





Cumming Cockburn Limited   
Consulting Engineers, Planners, and Environmental Scientists



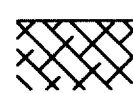
REGIONAL MUNICIPALITY  
OF  
OTTAWA-CARLETON  
ENVIRONMENTAL SERVICES  
DEPARTMENT  
R. DENHAM, P.Eng.  
ENVIRONMENTAL SERVICES COMMISSIONER

Approved by: \_\_\_\_\_  
Manager of  
Water Facility  
Project Branch  
Date \_\_\_\_\_



Project Officer \_\_\_\_\_ Date \_\_\_\_\_  
Drawn by: \_\_\_\_\_ Date 02/09/92  
Checked by: \_\_\_\_\_ Date \_\_\_\_\_

- Notes:
1. CONNECTIONS TO EXISTING AND NEW WATERMAINS SHALL BE BY GENERAL CONTRACTOR UNDER SUPERVISION OF R.M.O.C. PERSONNEL.
  2. SUPPLY AND INSTALL WATERMAIN, ALL IN ACCORDANCE WITH R.M.O.C. STANDARDS AND SPECIFICATIONS.
  3. CONTRACTOR IS REQUIRED TO OBTAIN LOCATES FOR ALL UTILITIES PRIOR TO EXCAVATING. ALL UTILITIES SHOWN ARE APPROXIMATE.
  4. BOREHOLE INFORMATION SHOWN AS PER SOILS REPORT PREPARED BY JOHN D. PATTERSON AND ASSOCIATES LTD., FILE S5791.
  5. ALL FIRE HYDRANT FLANGES(BOTTOM) SHALL BE INSTALLED 100mm ABOVE EXISTING FINISHED GRADES.
  6. SERVICES WERE INSTALLED ON PRIVATE PROPERTY AND CONNECTED TO EXISTING PLUMBING.

 AUGER REFUSAL  
 N/R END OF BOREHOLE

| No. | Revision                          | Date        |
|-----|-----------------------------------|-------------|
| 3.  | ADD AS-BUILT INFORMATION          | 05 OCT./93  |
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Scales  
HORIZ. 1 : 500  
VERT. 1 : 50

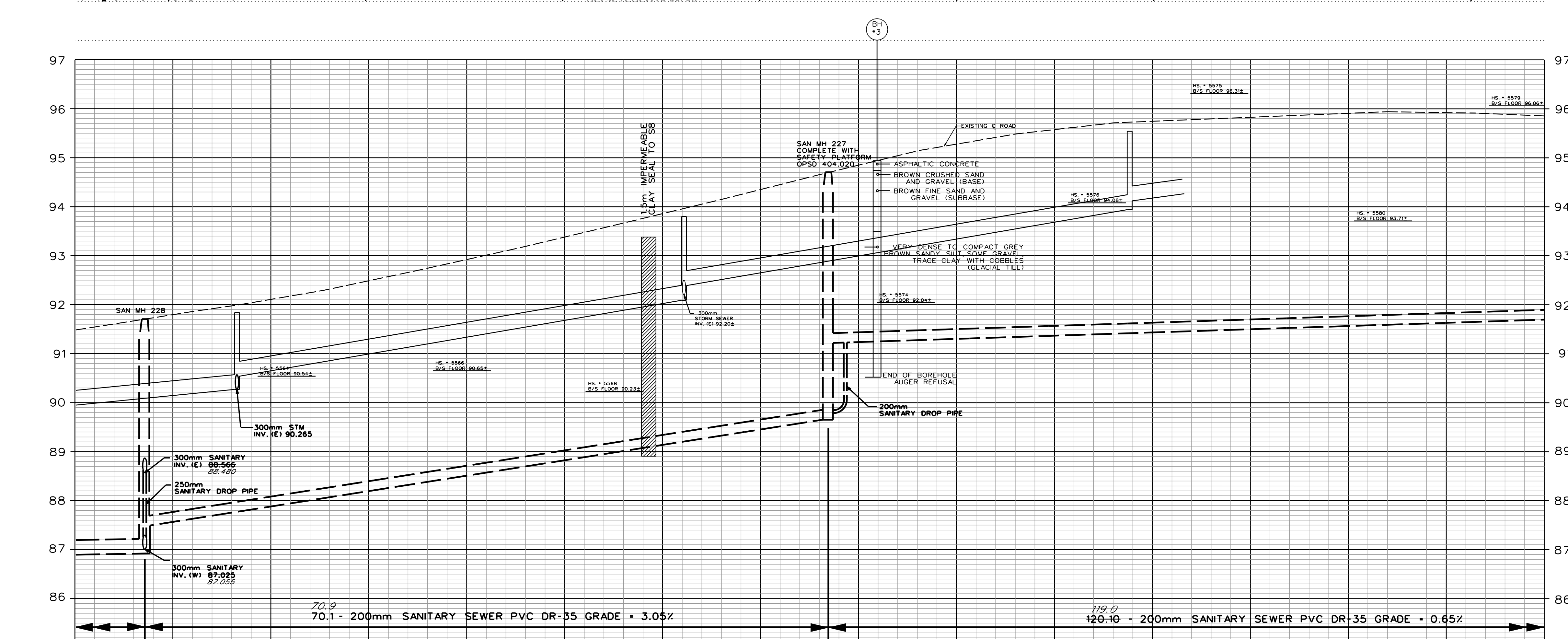
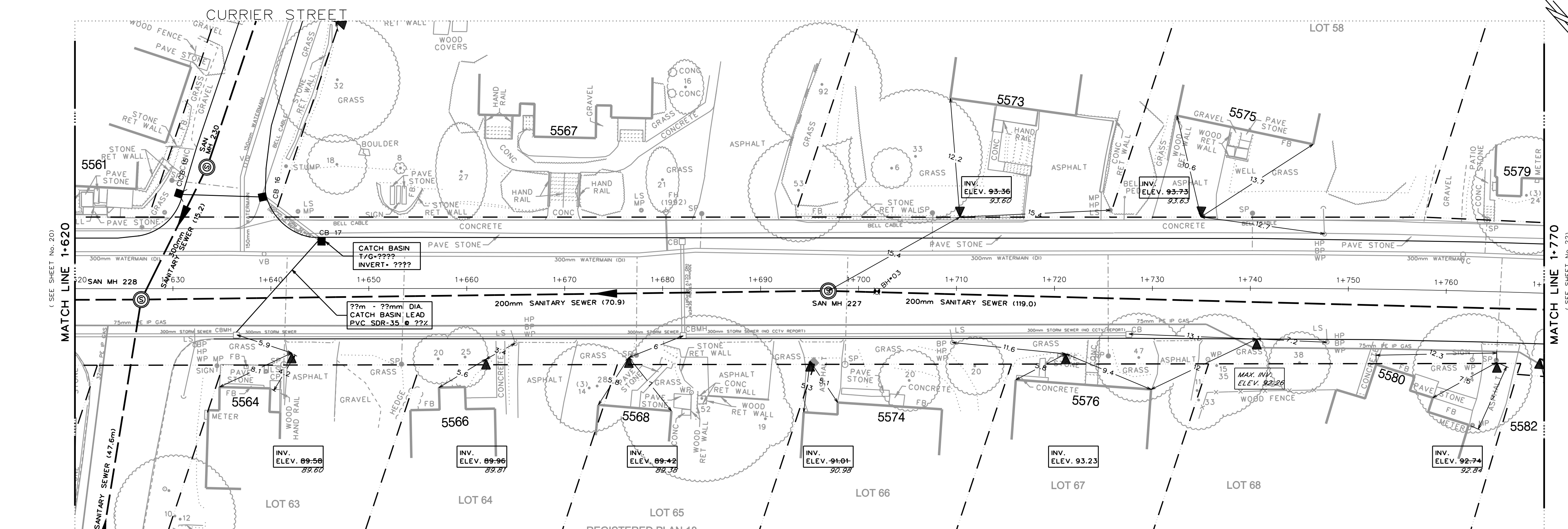
Project Title  
**MANOTICK WATER  
DISTRIBUTION SYSTEM**

MAIN STREET  
STA 0+640  
TO  
EASTMAN AVE

Drawing No.: 3708-MU-103  
Rev. No.: 3

2055 COMMERCIAL CORE - MANOTICK MAIN STREET (21)

MANOTICK MAIN STREET



| Top of Watermain | Existing Surface | Elevations | Sewer Type & Diameter | Existing Sewer Inverts | Stations |
|------------------|------------------|------------|-----------------------|------------------------|----------|
| 91.47            | 91.78            |            | 300mm SANITARY SEWER  | 87.425                 | 1+620    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+630    |
|                  |                  |            | 300mm SANITARY SEWER  | 87.425                 | 1+640    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+650    |
|                  |                  |            | 300mm SANITARY SEWER  | 87.425                 | 1+660    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+670    |
|                  |                  |            | 300mm SANITARY SEWER  | 87.425                 | 1+680    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+690    |
|                  |                  |            | 300mm SANITARY SEWER  | 87.425                 | 1+700    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+710    |
|                  |                  |            | 300mm SANITARY SEWER  | 87.425                 | 1+720    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+730    |
|                  |                  |            | 300mm SANITARY SEWER  | 87.425                 | 1+740    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+750    |
|                  |                  |            | 300mm SANITARY SEWER  | 87.425                 | 1+760    |
|                  |                  |            | 200mm SANITARY SEWER  | 87.425                 | 1+770    |

| Revisions: |               |                                       |          |             |
|------------|---------------|---------------------------------------|----------|-------------|
| No.        | Date          | Description                           | Drawn By | Approved By |
| 6          | APRIL/2011    | "AS BUILT" INFORMATION ADDED          | MB       | PDR         |
| 5          | APRIL/2009    | ISSUED FOR CONSTRUCTION               | MF       | PDR         |
| 4          | JANUARY/2009  | ISSUED FOR TENDER                     | MF       | PDR         |
| 3          | DECEMBER/2008 | FOR MORE APPROVAL / FINAL CIRCULATION | MF       | PDR         |
| 2          | JUNE/2008     | ISSUED FOR CITY REVIEW                | MF       | PDR         |
| 1          | MARCH/2007    | ISSUED FOR CIRCULATION                | MF       | PDR         |

| Design:                             |      |                    |      |  |
|-------------------------------------|------|--------------------|------|--|
| Designed By                         | Date | Checked By         | Date |  |
| D. LEFEBVRE                         |      | P.D. REVEY, P.ENG. |      |  |
| Survey Detail By                    | Date | Field Checked By   | Date |  |
| FARHALL, MOFFATT & WOODLAND LIMITED |      |                    |      |  |
| Drafting By                         | Date | Checked By         | Date |  |
| M. FASSBENDER / M. BROWN            |      |                    |      |  |

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

|                                     |
|-------------------------------------|
| Manager, Construction Services West |
| B. MASON, P.ENG.                    |

| Final Measurements:          |      |                            |      |  |
|------------------------------|------|----------------------------|------|--|
| Construction Type            | Date | Inspector                  | Date |  |
| SANITARY SEWER INSTALLATION  |      | R. HOLLEY / M. PAPPS (JLR) |      |  |
| Work Commenced               | Date | Project Manager            | Date |  |
| APRIL 2009                   |      | L. MARNEAU, P.ENG.         |      |  |
| Work Completed               | Date | Field Book #               | Date |  |
| SEPTEMBER 2010               |      |                            |      |  |
| Contractor                   | Date |                            | Date |  |
| COLAUTI CONSTRUCTION LIMITED |      |                            |      |  |
| Location Revisions           | Date | Checked By                 | Date |  |
| M. BROWN, A.S.C.T.           |      | D. LEFEBVRE, C.E.T.        |      |  |

DISCLAIMER:  
THE LOCATION OF SERVICE LATERALS AT OR NEAR THE  
PROPERTY LINE REPRESENTED HEREIN IS APPROXIMATE  
ONLY AND SHOULD BE FIELD VERIFIED.

NOTE:  
SANITARY SERVICE LATERALS ARE 135mm DIA PVC DR-28  
UNLESS OTHERWISE NOTED



**J.L. Richards & Associates Limited**  
864 Lady Ellen Place  
Ottawa, ON Canada  
K1Z 5M2  
Tel: 613 728 3671  
Fax: 613 728 6012

JLR# - 21490

Watermain Notes:  
1. All watermain materials and construction methods shall be in accordance with the latest edition of the City of Ottawa Standard Specifications and Standard Drawings.

Legal Survey Notes:  
Boundary information shown hereon has been compiled and calculated from Teranet data and not based on an actual survey.  
Distances shown to survey monuments are for reference purposes only, survey monuments may not define property boundaries.  
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THIS IS NOT A PLAN OF SURVEY  
This plan was compiled from plans and documents recorded in the Land Registry System and has been prepared for property indexing purposes only.  
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This notice is not an admission of publication.



**Ottawa**  
Infrastructure Services and  
Community Sustainability  
Construction Services West Division  
110 LAURIER AVENUE WEST, OTTAWA, ONTARIO, K1P 1J1

N. Schepers, P.Eng.  
Deputy City Manager

W. Newell, P. Eng.  
Director, Infrastructure Services

VILLAGE OF MANOTICK MUNICIPAL SERVICING  
COMMERCIAL CORE  
MANOTICK MAIN STREET  
PLAN AND PROFILE  
STA. 1+620 TO STA. 1+770

Contract No: ISB06-2055

Survey Books:

Scale:  
HOR. 1:250  
VERT. 1:50

Plan No: 14121

Sheet 21 of 69

2055 COMMERCIAL CORE - MANOTICK MAIN STREET (22)

